The Veterinary Record

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 21. MAY 22, 1937. VOL. 49.

Observations on the External Use of Cod-Liver Oil

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GLASGOW

Though no earlier report has been published upon the above, I have reason to believe that the treatment of wounds and ulcers with cod-liver oil has become to many, *via* direct and indirect communication, historical.

A canine subject suffering from partial lagophthalmos, which in turn had given rise to a corresponding transverse linear xerophthalmia superficialis, was the means whereby this form of treatment was introduced at the Glasgow Clinic, January, 1930.

In this subject, which had had a liberal supply of milk and animal fats incorporated in its diet, the lesion, under a corneal loupe, was seen to bear a striking resemblance to deficiency xerophthalmia which I had been privileged to see in animals undergoing vitamin deficiency experimentation.

From the similarity, it was then reasoned that the local application of cod-liver oil might assist the cornea in repair. So far as the xerophthalmia was concerned, this hope was realised, and, so encouraged, further extension was made to embrace wounds and ulcers.

At this time it was thought that the peculiar healing qualities of cod-liver oil, as in local application, were attributable to its vitamin content, on the following grounds:—

(*i*) That vitamin "A" was particularly concerned with increasing the resistance of tissues to infection.

(*ii*) That vitamin "D" was concerned with biochemical balance of tissues and that this was reflected in vigorous cell growth. That is to say, that what is accepted as a general nutritional fact could be applied to local treatment response.

The publication by Löhr (1934) of observations upon cod-liver oil in wound treatment, lent support to my belief that its virtue was centred upon its vitamin content.

At a later date, when Witten's vaseline-pack method of treating wounds was brought to my notice, the results claimed for it offered a challenge to the theory which had been woven round the vitamins in cod-liver oil. The successes claimed for this mineral oil invited further investigation into the question as to whether vitamins played any part at all.

The following comparative tests were carried out.

All lesions of the eye and the body, similar to those formerly treated with cod-liver oil, were treated with halibut-liver oil—then of recent introduction. Contrary to expectations, the results were so definitely less successful in regard to the rate of healing that grave doubt was cast upon the tenability of the vitamin theory in local wound treatment.

A further series of tests was made in accidental wounds which were of sufficient extent to permit sub-sectioning by paraffin walls. As circumstances permitted, these sections were anointed with either cod-liver oil or halibut-liver oil alone or with 1 in 20 dilutions of each other. The results, as assessed by the clinical appearance of rate of healing, may thus be summarised:—

Substance	Healing Factor (relative)
Cod-liver Oil alone	10
Halibut-liver Oil alone	2
C.L.O. + H.L.O.	10
H.L.O. + C.L.O.	4

The impression gained as a result of the above tests and observations is as follows:—

That the vitamins of cod-liver oil appear to play little or no part in the phenomena which attend the local application of this animal oil to a wound, *i.e.*, compared to an untreated control area an appreciable increase in the vitamin content of cod-liver oil did not appear to enhance cod-liver oil's properties to produce phagocytosis, fibroblasts and capillaries.

Accordingly, it is assumed that the oil itself is the prime factor in assisting the healing of ulcers and infected wounds.

The precise mode of action is not quite clear meanwhile. On the one hand, it is known that rancidity is continuously accompanied by the development of "active oxygen." I am given to understand that a peroxide number of 500=3 per cent. of w/v H_2O_2 can be readily produced in cod-liver oil. If the action of cod-liver oil be due to this "active oxygen" of its decomposition, it is not unreasonable to suggest or anticipate that wheat-germ oil, with its peroxide number of 1,000, should excel cod-liver oil not only in efficiency but also aesthetically. On the other hand, it is known that tissues contain an enzyme which is capable

of hydrolysing a fat or an oil of animal origin. Does the amount of free acid determine the amount of tissue response? The following observations were conducted upon wounds under conditions similar to those prevailing in the last tests. These leave an impression that both may be right: though I am of the opinion that priority must be given to acid products. Further tests employing wheat-germ oil would assist in answering this open question.

A further test, on a sub-sectioned wound using cod-liver oil alone, gave the following results. Each sub-section was uncovered at the time intervals given.

Duration of application Cod-Liver Oil	Reaction of discharges	Remarks
24 hours	7·0 *p*H	Phagocytosis increased.
48 hours	7·0 *p*H	*Idem* and granulation commencing.
72 hours	6·5 *p*H	Granulations well marked.
96 hours	5·8 *p*H	Granulations very well marked and highly vascular.

The granulations appeared to keep in step with increasing acidity of discharges; this is noteworthy when we remember that discharges from untreated infected wounds are invariably alkaline, though, as granulation proceeds, a drop in the *p*H value of the discharges is noted. Another intriguing point is that for all clinical purposes vegetable oils, *e.g.*, castor and olive, in lesser degree, and mineral oils, *e.g.*, liquid paraffin and soft paraffin, give individual actions in wound treatment which differ in degree but very little in kind from that to which I give pre-eminence, *viz.*, cod-liver oil.

Conclusions

(*i*) That in ulcers, which include those of the cornea, and in infected accidental wounds the local application of cod-liver oil has recommendations which place it above other vegetable and mineral oils which were the subject of test under clinical conditions.

(*ii*) That its vitamin content does not appear to play any appreciable part in assisting the healing of wounds.

(*iii*) That the oil itself is in the first instance sedative by protection.

(*iv*) That in the process of decomposition, *in situ*, undetermined processes are in operation; but two factors, in the main, are considered: (*a*) the production of "active oxygen"; (*b*) terminal acid products.

(*v*) That the pack method is indicated in the treatment of wounds.

Reference.—Löhr (1934.) *Zlb. chirurg. L.* xi. p. 1686.

Cod-Liver Oil as Local Treatment for External Affections of the Eyes*

EDGAR STEVENSON,
Liverpool

For the past six months I have been experimenting with cod-liver oil as a local treatment for various eye conditions, and have been able to arrive at certain conclusions, the chief of which is that the oil has an undoubted and rather surprising efficacy as a healing agent. It is obvious that in trying out any new method of treatment the more one can exercise direct supervision of all the cases treated, the better one can assess the results, and it happens that we are favourably placed as regards this supervision, as my partner and I have arranged part of our premises as a private out-patient department, to which are sent eye accidents from the local shipyards and from other works further afield. All of these cases need more skilled attention than can be given by the firm's ambulance departments. We have two skilled assistants and now that ship-building is once more becoming active, we deal with a large number of cases. (I started this very interesting sideline over 30 years ago.) In consequence we are able to watch the progress of a case from day to day, or even several times daily if necessary, thus having a great advantage over the ordinary hospital out-patient department.

I am indebted to Dr. Steel, of Toxteth Infirmary, Liverpool, for his interesting account in the *Lancet* of August 10th last, of his treatment of burns with cod-liver oil, and was much impressed by the apparent absence of scarring in his cases. I was actually reading his paper on August 13th, when a case most aptly arrived —a very severe burn of the inner half of both right lids from a red hot rivet, which adhered to the patient's lids till he had reached ground from the top of the 40-ft. ladder on which he was working.

I put in a drop of weak atropine solution, dressed the burn with a thick pad of gamgee soaked in ordinary cod-liver oil covered with oiled silk and a bandage, and sent him home and hoped for the best. Next day it seemed to be doing well, no pain, a good deal of mucoid discharge. This was gently wiped off and an oiled pad reapplied. The patient was instructed to get a small bottle of the oil and to keep the pad moist by pouring some oil on the outside of the pad if it seemed to get dry. He was seen daily for a week, by which time the

*Reprinted from the British Journal of Ophthalmology, July, 1936.

lids were filling up. After that he was allowed to use the oil at home and attend every three days. In exactly four weeks the lids were filled up and healed. Both canaliculi had escaped destruction; there was no scarring; skin quite soft, but rather red and itching. He had no treatment except the oil and wiping away any mucus and the preliminary drop of atropine. He returned to work on September 15th, and two months later turned up with a localised deep burn of the left eyeball, just clear of the cornea at the inner side. This healed in five days with the oil, leaving a small and rapidly diminishing white patch of scar tissue in the conjunctiva. The right eye looked normal except that the lids had lost their sharp cut edges where burnt, and also, some lashes; no sign of scarring or lacrymation.

This case is typical as regards treatment, and was the most severe of other similar accidents.

One interesting case on December 2nd, had a splash of liquid caustic (used in cleaning hulls of ships) dropped into his right eye from a height of 30 feet, damaging the conjunctiva of the upper lid, lower half of cornea and conjunctiva, and deeply burning the lower fornix. Very painful, much chemosis and swelling of lids. Oil was used freely and atropine for two days. The eye improved rapidly, but a symblepharon was forming in the lower lid. This was quite soft, very easily separated and did not recur. On December 7th, five days after the accident, upper lid, cornea and conjunctiva were normal except for much redness in the lower fornix. Eye comfortable. Returned to work.

Other corneal conditions.

(1) On February 17th, a very deep linear abrasion, about 1 mm. wide, horizontally across two-thirds of cornea, with ragged edges, and a smaller one less deep below it, caused by flying piece off head of rivet. Some particles of dirt were removed from the edges of the wound, drops of weak atropine and oil instilled and pad strapped on. Next day pad removed. Except for an almost invisible white line in cornea, no sign of any injury. The rapid healing of this case surprised us; it really was a very nasty wound.

(2) An old lady, aged 78 years, with dendritic ulcer of left eye. Much pain and photophobia. History of previous attacks, treated by carbolising, and lasting about two weeks. One instillation of oil relieved the pain in ten minutes and stopped the lacrymation. Seen again a week later when except for two small rough spots the ulceration had disappeared and the inflammation and redness had entirely subsided. She had no other treatment.

(3) A child, aged five years, seen at Heswall Children's Hospital in October. Under treatment two years for coeliac disease and for about nine months for relapsing keratitis and ulcers of the left eye. Lids much swollen. Under treatment with slight temporary improvement and long periods of relapse. Oil tried as last resort three times daily. The ward sister reported the result as "miraculous." Child much improved in 24 hours and practically well in four days, but treatment continued for some weeks to clear up nebulae with apparent success. The cornea is now bright and clear except for a very small central nebula. No relapse in four months, but is still having a drop of oil daily.

Hypopyon ulcers show rather curious results. A thick growth of epithelium forms at once (in 24 hours) after first instillation, turning the ulcer into an abscess. We find it better not to use the oil till active septic process has subsided. They then seem to heal very satisfactorily with minimum opacity.

I mention these few cases to show that the treatment can be used in a diversity of affections of the eyes. But we have notes of over 150 cases treated at our own clinic and we think that its use has greatly reduced the usual pre-oil number of necessary attendances. I am experimenting at present with the chronic degeneration from mustard gas, and some other chronic conditions, with so far encouraging results, and I want to try it for phlyctenular disease, but have not seen a case of this since I started the treatment.

My partner, Bernard Chavasse, has been using the treatment at the Eye and Ear Infirmary, and reports good results, but he has difficulty in following up the cases. He is specially pleased with the rapid healing of blepharitis and of general soreness of the lids.

To sum up. Cod-liver oil applied locally, seems to promote growth of the natural tissues and to inhibit growth of scar tissue, in any case where there is loss of substance. It should be withheld in the *early* stages of hypopyon ulcer. It is harmless, can be used in conjunction with other necessary treatment, is cheap and easily applied.

The best drop bottle is one made by Messrs. S. T. Pearson and Co., Ltd., Mitcham. It has a vulcanite cap below the rubber which prevents the oil from getting on to the rubber.

The only disadvantage is the smell which, in the small quantities used for the eye, is of no consequence.

* * * * *

Decision to invite Mr. Dykes to contribute the article appearing at the commencement of this issue, and to reproduce the succeeding contribution from Dr. Stevenson, was made following upon the receipt of the following letter:—

To the Editor of the Veterinary Record

Sir,—In your issue of February 27th, you published an account of the treatment of wounds

with crude cod-liver oil, reprinted from the *British Medical Journal.* This induces me to send you a reprint from the *British Journal of Ophthamology* on the treatment of external affections of the eye (human) with cod-liver oil. The article in question was brought to my notice by a client, and I have been trying this agent for some months with good results, on the usual injuries one meets with in small-animal practice —chiefly ulceration of the cornea and keratitis. One rather striking success was in a Pekingese which had fullen into a builder's lime pit, and was burnt on both eyes—the eyes having the well known pearly-white appearance of the cornea. Fortunately there was no delay in bringing the dog for treatment, which consisted of wiping the eyes frequently with crude cod-liver oil. The eyes cleared up and returned to normal in ten days.

Yours faithfully,

J. Stewart Wood.

Parkstone.

March 29th, 1937.

STANDARD PEDIGREE DESCRIPTION FOR CATTLE

The term "registered pedigree" was agreed on at the annual meeting of the National Cattle Breeders' Association as a standard description for pedigree stock and for those not registered it was decided that the description should be "accepted for registration."

It was stated that such descriptions for stock would at once indicate that any animals, otherwise designated in auction sales, even though said to be pedigree or pure-bred animals, could not be acquired for the production of stock to be registered in the herd or flock books of the pedigree societies.

The Hereford Cattle Society's representative said that when cattle of the breed were sold as pedigree the vendors were required to supply the pedigrees, but there was no such obligation on vendors if cattle were simply sold as pure-bred.

* * * * *

TRAFFIC IN DISEASED POULTRY

At a meeting of the Council of the Royal Agricultural Society of England it was reported that, as the result of the deputation to the Minister of Agriculture, organised by the Society, the Minister had decided to frame an Order designed to prevent the exposure for sale at markets of poultry obviously in a diseased condition.

The opinion was expressed before the Minister that markets were rapidly becoming nothing more than dumps for diseased poultry. It was urged that the Order should provide that where fowls were sent to the market without anyone in charge, the owner of the market, or the auctioneer should be regarded as the person in charge, that it should be at the discretion of the veterinary inspector whether or not the fowls were slaughtered or kept for treatment, and that the owners of fairs and markets must provide a case to which the diseased fowls or carcases could be removed.

Malignant Disease in Animals and its Implications as regards the Cancer Problem as a Whole

J. R. M. INNES

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The pathology, incidence, genesis, malignancy and surgical treatment of neoplastic disease of the lower animals has not been studied as intensively as in man. Nevertheless, it is to be stressed that such a study is a necessary adjunct for the study of the disease problem as a whole, as it is totally unscientific to regard cancer in man as worthy of so much attention and to regard it only as an object of academic interest in the domesticated animals. Much could be done by taking a wide view, and because of the enormous amount of material available, many points of great practical and theoretical importance could be investigated by utilising animal and human material as well as by the latter alone. Along these lines a series of papers will shortly appear in collaboration with Colonel W. F. Harvey and Dr. Edith Dawson, of the Royal College of Physicians Laboratory, Edinburgh, in which many debatable aspects of tumour pathology will be discussed.

In spite of orthodox teaching there is great difficulty in forming an accurate definition of neoplasia beyond the fact of autonomous growth. As Nicholson states, wherever we look we see that tumours exhibit no differences in kind but only in degree, often of the slightest, from other tissues of the body. Tumours are by no means the outcasts of the body, as so many pathologists would have us believe.

All tumours are composed of parenchyma and stroma, the amount and type of each varying in different classes of growths. Nearly all adult and embryonic tissues have their parody in some type of growth; it is therefore desirable that, at present, the classification of tumours should be on a histogenetic basis. For example, in the case of the mesenchymal tumours and gliomata (classification of Bailey and Cushing) it is possible in this way to find some analogy in neoplasia corresponding with every undifferentiated and adult type of mesenchymal and glial cell.

The distinctions between benign and malignant tumours were shown to involve questions of interest from both the theoretical and practical sides. The essential differences between them were reviewed. After many years of experience and co-operative work between the surgeon and pathologist it is possible in the case of man to draw some inference regarding

the course of a tumour from its structure; in animal pathology this inference is in reality only surmise. In the case of animals it is assumed, often wrongly, that tumours which bear a structural resemblance to a tumour in man may be expected to take the same course Exact data must be derived from studies of animal material alone and comparisons then made with the disease in the human. While the histology in many circumstances should override all other considerations in the estimation of malignancy or otherwise, this interpretation must be influenced by such factors as the anatomical location of the tumour, its attachments, the presence of a capsule, and the age and condition of the patient (human or animal). It is a common error to ignore these essentials and as a result is possibly the cause of so much difference in opinion regarding the relation of microscopical structure to the course and prognosis of neoplastic diseases.

The structural features indicative of malignancy were mentioned, stress being laid upon the feature of anaplasia. The more primitive and undifferentiated the type of cell the more malignant is a growth likely to be. As Adami has postulated, a cell cannot carry out at the same time its functioning and vegetative powers. This law has a wide application in all pathological processes, but more particularly to malignant disease.

The most impressive sign of malignancy is the metastatic spread of tumours. For the scientific study of the behaviour of tumours, metastases are of as great importance, however inconspicuous, as the primary growths. The description of a neoplasm is incomplete if it does not embrace the metastases. There are few comprehensive accounts of such studies in man apart from the recent publication by Willis (1933), "The Spread of Tumours in the Human Body," and none in animal pathology. This field alone in animal pathology has therefore much to commend it for study, as it may provide the solution to many problems of practical and scientific importance (*e.g.*, in the case of the spread of breast cancer).

The paths of neoplastic extension are (*a*) along the planes of tissue cleavage, (*b*) by lymph vessels, (*c*) by the blood vessels, (*d*) by coelomic spread, (*e*) along cerebrospinal spaces, (*f*) and along epithelial cavities. Along any of these routes tumours may extend *without loss of continuity* over wide areas, and by the same routes, except the first, by *discontinuous extension* and the production of remote metastases by the carriage of detached tumour cells. Regional extension and metastasis differ in the continuity or discontinuity of the spread; the term metastasis, therefore, should be confined strictly to discontinuous spread with the setting up of new secondary foci. Each method of spread was discussed and examples cited,

In the case of spread *via* the lymph vessels a distinction must be drawn between the entrance of tumour cells into the vessels and subsequent embolic transit, and lymphatic permeation. The latter has been claimed by Handley (its great protagonist) as the major mechanism involved in all carcinomatous dissemination, and in the case of the human female has been a feature in determining the surgical technique dealing with breast cancer. In view of the controversy raging around Handley's contentions it is apparent that here is a field in animal work which could prove of undoubted service in determining the extent which lymphatic permeation plays in the spread of malignant disease of the breast.

Although commonly taught to students it is erroneous to believe that carcinomata spread exclusively by the lymph stream and sarcomata by the blood stream. Some of the former class are notorious for their early invasion of the vascular system, *e.g.*, hypernephroma of the kidney, hepatic tumours, and bronchogenic carcinoma. In the case of breast cancer spread may occur simultaneously by both lymphatic and haemotogenous paths. In every tumour, irrespective of its type, subsequent to the involvement of the lungs by secondary deposits, invasion of the systemic circulation with resultant tertiary deposits in the visceral organs is almost universal. The intimate relation of sarcoma to the blood vessels and hence the common invasion of large and small veins, is repeatedly, perhaps too emphatically, stressed in text-books.

Tumour emboli present in the vessels of a primary growth do not necessarily signify metastases; many tumour emboli must undoubtedly perish in the blood stream or remain sterile in their new environment. Only if the transported cells survive, multiply and retain their growth characteristics can a secondary tumour be established.

In connection with coelomic spread it may be pointed out that, although primary tumours of the serous membranes probably do occur, the diagnosis of such is frequently made (in man and animals) on totally inadequate grounds, and without proper appreciation of the frequency with which small primary carcinoma in the neighbouring viscera may yield massive local extensions to the serous membranes (Willis, 1933).

The effects on the body of malignant disease were summarised. Emaciation can be said to be the constant effect of malignant disease. This may occur with or without anaemia and sometimes with the preservation of the fat deposits. Symptoms are naturally controlled largely by the localisation of the tumour.

The relation of neoplasia to inflammatory hyperplasia can be summed up in the words of Borst, that the latter results from exaggerated response to external irritants, while neoplastic

growth arises from loss of normal restraints to growth. The one (inflammatory overgrowth) is purposeful, organised, self-limiting, typical accelerated hyperplasia (*e.g.*, callus formation in the repair of bone), the other (neoplasia) is baneful, lawless or progressive atypical degenerative growth excess. Nevertheless, such theoretical distinctions may fail when applied to processes of a doubtful nature.

Following the above general consideration of malignant disease, two examples of relatively common forms of malignant disease in animals —that occurring in the testis and the mammary gland of the dog—were discussed. As both of these will form the subject matter of separate communications in the future only the general outline of the remarks is given here.

Malignant Disease of the Testis.—The structure and embryology of the organ was reviewed to attain an understanding of the types of tumours which could and do occur. From the point of view of surgical treatment, it must be remembered that the lymph drainage of the testis is entirely through vessels in the spermatic cord to reach the lumbar and para-aortal lymph glands; the inguinal glands, although in close proximity to the testis, do not receive any lymph vessels draining from the testis. In 25 cases of testicular tumours (*post-mortem* and operation specimens) the seminoma or embryonal carcinoma were found to be by far the commonest type encountered (20 cases). In the case of man, the seminoma (also the commonest tumour) is still frequently and erroneously classified as a round-cell sarcoma. The seminoma is a rapidly-growing, soft tumour arising in the seminiferous tubules and invading the *rete testis*. The tumour may reach a considerable size and then undergo central necrosis and haemorrhage. The shape and outline of the organ is always retained, as the *tunica vaginalis* acts as an inhibitory barrier to lateral spread. The tumour occurs in dogs of any age, but usually in middle-aged animals, and the epididymis is almost never involved. Although the tumours in dogs are histologically indistinguishable from the seminoma of man (a malignant tumour), they appear to metastasise relatively late. From cases in which a follow-up history has been obtainable post-operative survival may be up to five years without recurrence or spread. Simple orchidectomy without any radical operation appears, therefore, in such cases to offer a reasonable chance of permanent cure. The occurrence of prolan in the urine of cases in man was discussed in relation to diagnosis and possible aetiology, as has been suggested by some workers. In a paper to be published shortly (Innes, Harvey and Dawson) dealing with the classification of testicular tumours in man and animals, it will be shown that in reality there are only two distinct types of tumour of the testis, *viz.*, the seminoma and the teratomata, the latter of which is undoubtedly more highly malignant.

Malignant Disease of the Mamma in Dogs.—The structure, embryology and lymphatic drainage of the breast was next considered. It was emphasised, in relation to cancer of the mamma, that the breast is not a static structure, but one constantly undergoing periodic changes as a result of hormonal control, and that if this control becomes disturbed the changes will cross from the physiological to the pathological. To understand the genesis and pathology of malignant disease, one must bear in mind the variations in the structure and function of the breast from birth to puberty, pregnancy, lactation, involution and senile atrophy.

Whether the tumour is located in the anterior or posterior mammae secondary involvement of the axillary lymph node by carriage of tumour emboli in the lymphatic vessels draining from the mammae is almost inevitable. Naturally, primary tumours arising in the axillary or pectoral mammae will spread to the lymph node relatively earlier than those arising in the posterior glands. Secondary deposits may be set up in the lungs either by direct venous transport of tumour cells from the primary growth, or in the same way from the axillary node metastases or even *via* the subpleural lymphatics involved in direct lymphatic permeation from the primary growth. Subsequently to the formation of pulmonary metastases, invasion of the systemic circulation in the lungs will result in tertiary deposits in the visceral organs. All of these points regarding dissemination are of the utmost importance in the contemplation of post-operative treatment in the case of the human, and will form a separate publication at a later date.

The common occurrence of cartilage, and bone formation (often with haematopoiesis in the marrow spaces of the latter)—metaplasia—in chronic inflammatory conditions of the dog's mammary gland must be distinguished from true osteochondroma.

The various types of benign and malignant tumours of the mamma were briefly reviewed. The spread of malignant tumours in the bitch's mamma follows closely the paths of dissemination which occur in the case of breast cancer in women. In the case of the bitch malignant sarcoma of the mamma has been observed to disseminate by the same routes as carcinoma, *viz.*, primarily by lymphatic paths—a point which again emphasises that it is erroneous to believe that sarcoma spreads mainly by blood stream invasion.

The occurrence, genesis and histological changes of pathological conditions were discussed. It could be considered that in the mammae we might have increased lobular overgrowth (the adenosis of Dawson, normal when occurring during lactation but pathological when

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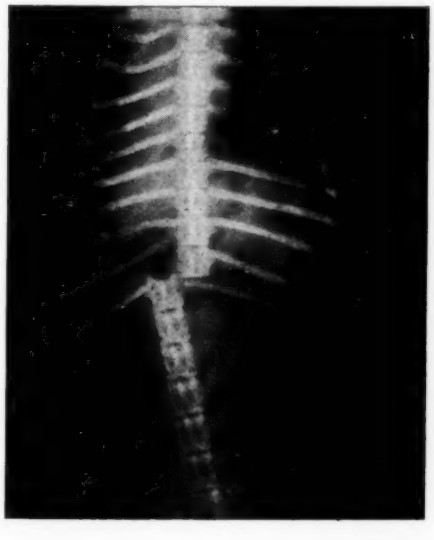

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The Department has been entirely reorganised, but the work is proceeding by exactly the same methods as heretofore.

These tests are undertaken SOLELY for members of the Veterinary Profession.

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occurring outside the normal growth periods), increased epithelial proliferation remaining confined within the duct boundaries (the epitheliosis of Dawson) and interstitial fibrosis producing the fibroadenoma when combined with adenosis. Cystic ducts may complicate the picture at any time to produce what is often erroneously termed "chronic mastitis." A series of progressive changes might be followed in the duct epithelium until solid masses of atypical epithelium fill the duct to render the condition indistinguishable from carcinoma. The highly malignant condition is one of invasion of epithelium beyond the normal boundaries into the tissue spaces and lymph vessels of the mamma. In the bitch true malignant sarcomata are not infrequent.

The occurrence of lymphatic permeation in the deeper fascia of the breast, extending through the pectoral and intercostal muscles into the subpleural lymphatics, with the production of a true lymphangitis carcinomatosa in the pleurae, undoubtedly is common in mammary cancer of the dog. The practical importance of this possible mode of dissemination cannot be too highly stressed from the point of view of surgical treatment of mammary cancer in bitches and because of the criticism which has been directed at Handley's views regarding lymphatic permeation. It is wise to recall Handley's dictum regarding the operation involved in cases of breast cancer in women, namely—that "the problem is not the excision of an organ, but the extirpation of a diseased lymphatic area." The presence of miliary nodules near the area of the primary growth, in the area of the lymphatic paths draining the site, in the skin of the regional lymphatic glands or enlargement of the glands themselves in cases of breast cancer in bitches are all points of importance in determining the nature and extent of the surgical operation.

It is obvious that there is a great field awaiting investigation in this realm of animal pathology. More exact data are required about the incidence, types and genesis of tumours in animals; information is still required regarding the paths of dissemination of malignant growths; that regarding post-operative survival of animals following the extirpation of malignant tumours is unavailable. As one step in this direction the formation of a tumour registry would be invaluable. As Harvey and Hamilton have stated in connection with a similar idea in the case of man, this registry, if expanded, could be made into a similar collection to that of the National Type Collection of Organisms (Lister Institute). In this way it would be possible to obtain a type of tumour along with accurate information regarding the history of growth, malignancy and post-operative survival of the animal concerned either for teaching, research or museum purposes.

The paper was concluded by a demonstration of numerous specimens of malignant disease affecting the testis and mamma of the dog, including specimens to demonstrate the paths of dissemination.

The Veterinary Record
May 22nd, 1937.

The Control of Milk Production

THE present system of the control of milk production, besides being disorganised and complex, is strictly an anachronism: it originally arose from the desire of certain medical officers of health to protect the milk supply of large towns. As large towns grew, adequate local production of milk became increasingly more difficult and the supply was therefore brought in from the surrounding districts. It was found that much of this milk was contaminated with dangerous organisms, and so certain towns, such as Manchester and Birmingham, obtained powers to send out their own inspectors to examine the herds from which they derived their milk. As the towns became larger and the radius from which milk was drawn became greater the working of the Manchester clauses became practically impossible for it would have meant sending inspectors into several different counties. This was not only uneconomical but it also resulted in friction between the medical officer of the town and those of the counties from which the town's milk was supplied. Furthermore, this growth of the area of milk supply resulted in the establishment in the country of receiving stations, where the milk was bulked. The mixing of the milk from so many farms made it well-nigh impossible for the medical officer of the town to trace any infection in the bulked milk back to its original source, and the application of the Manchester clauses has therefore generally been abandoned.

But although the Manchester clauses have been dropped the medical officer still theoretically retains control over milk production, despite the fact that he has virtually no control over the quality of the product which is distributed to the population under his care. All the medical officer can now do is to ensure that the product he receives is rendered safe for human consumption.

It will be clear that the present position is highly unsatisfactory, for the greater proportion of the bulked milk for large towns, and also most of the milk used for manufacturing purposes, is produced without adequate control of production. The most satisfactory way of meeting this position is, as indicated by the *British Medical Journal*, to take control of production entirely out of the hands of the medical profession and to transfer it to the veterinary profession, to whom both in theory and practice it ought to belong. It is absurd that the Ministry of Health should be running a tuberculin-tested scheme and the Ministry of Agriculture and Fisheries a rival attested scheme. The system of milk control should be organised on a national basis and should form part of the organisation the National Veterinary Medical Association has previously put forward for the organisation and better utilisation of the services of the veterinary profession. Within the organisation we visualise a number of suitably trained lay inspectors who would supervise the technique of the production of clean milk on every farm throughout the country. As there are several centres in this country where short courses on clean milk production are available, these inspectors could be trained both economically and in a comparatively short time. The veterinary profession would concern itself essentially with the welfare of the animals themselves. No one but the veterinarian is in a position to advise the producer on the control of disease in his herd. If such diseases as tuberculosis, contagious abortion and mastitis are to be eradicated in the future a national veterinary service, including the practitioner, will have to be established, and the duty of this service will be primarily the prevention and eradication of animal disease. Such a service must, of course, be under a central authority and such a gigantic task as that which it will be called upon to undertake must be subsidised by the State. We are entirely in agreement with the report of the Milk Reorganisation Commission, that the eradication of animal disease must not be made contingent on a higher price received from the consumer of the milk coming from disease-free herds. The necessary economic stimulus to the producer to undertake disease eradication must of course be provided, but it must come not from the consumer but from the State; as in fact it does in such other countries as Denmark and the United States of America.

ABSTRACT

[Milk Examination: Comparison of Plate Count and Reductase Test. Faulds, J. S. *Lancet*, 232, 5929, 949.]

The author has compared the plate count and coliform test with the methylene blue reductase method of examining samples of milk for bacterial "cleanliness," to see to what extent results of the two procedures were in agreement.

Fifteen hundred samples of milk were subjected to comparative tests during 1936, the standard techniques being rigidly adhered to, and considerable discrepancy between results was noted. On the whole, the reductase test proved to be more stringent during the hot weather and less stringent when it was cold. Combining the author's own figures with those of three other sets from independent workers whom he quotes, over 10,000 samples have been compared by the old and the new methods and the recorded percentage discrepancies have varied between 10 and 45. Since both the old and new methods give a more or less similar number of faulty results there is no real justification for changing over to the new method unless it is considerably easier or cheaper to carry out. According to the author, the average charge for the combined plate count and coliform test is 3s. 6d. The suggested rate for the reductase and coliform tests is 2s. 6d. and for the reductase test alone 1s. He points out, however, that the chief expense in testing is the collection of samples, which costs between 1s. and 5s. Since a greater number of tests per annum are recommended when the reductase test is adopted, any financial saving on the test is counterbalanced by the extra cost of collecting more samples. [It is generally agreed that neither method is satisfactory, so that until some more efficient method is evolved the ideal procedure would be to test composite samples of milk from every producer daily by either method, and in that way a good idea of the average standard of the milk would be obtained. Obviously this is an unattainable ideal, but samples can at any rate be tested weekly or at least monthly. The point is that not only with the reductase test but also with the plate count, testing *should* be done very frequently, but whereas this aim is difficult to achieve (on practical grounds) in the case of the plate count, it is easy if the reductase test is used. It should also be remembered that by means of the reductase test wholesale buyers can more readily control the quality of their supplies, and the progressive dairy farmer can check the efficacy of his hygienic measures.]

E. J. P.

ANNOTATION

Recent Outbreaks of Milk-borne Disease

In Appendix 6 of the Report (1934) of the Cattle Diseases Committee of the Economic Advisory Council will be found a list of milk-borne epidemics which occurred in the United Kingdom between 1900 and 1931. The purpose of this annotation is to bring the information up to date (close of 1936), so far as this is possible, and to give the salient features of some of the more recent and larger epidemics. The following is a list of milk-borne outbreaks since 1931.

Number of Outbreaks.	Place.	Year.	Case Incidence and Mortality.	Reference.
			Septic Sore Throat and Scarlet Fever.	
(1)	Glasgow	1932	81	Ann. Rep. M.O.H. (1932) p. 94.
(2)	Hyde	1933	33 (including 4 deaths)	Ann. Rep. M.O.H. (1933) p. 36.
(3)	Chelmsford	1935	About 1,600 (6 deaths)	Camps & Wood (1936) *Lancet*, ii, 756.
(4)	Denham	1935	At least 87	Ann. Rep. C.M.O. (1935) p. 138.
(5)	Glasgow	1936	28	(Unpublished).
(6)	Doncaster	1936	At least 186 (including 3 deaths)	*Brit. Med. Jour.* (1937) No. 3965, p. 26.
			Typhoid.	
(7)	Ryton and Blaydon	1932	52 (including 2 deaths)	Ann. Rep. C.M.O. (1932) p. 55.
(8)	Bournemouth	1936	Over 1,000 (at least 51 deaths)	*Brit. Med. Jour.* (1936) ii, p. 544.
			Paratyphoid.	
(9)	W. Hartlepool	1933	24 (including 1 death)	Ann. Rep. M.O.H. (1933) p. 48.
(10)	Epping	1933	22	Ann. Rep. C.M.O. (1933) p. 47.
			Salmonella.	
(11)	Wilton	1936	About 100	(Unpublished).

The following notes regarding these outbreaks are given.

(1) The outbreak lasted from December 14th to January 1st. The 81 cases of scarlet fever were severe and were associated with an indefinite number of cases of sore throat and erysipelas. All the patients had consumed milk from one farm. The farmer, his wife, and the milker had all had influenza and sore throat about December 25th, but *Str. pyogenes*, *i.e.*, scarlet fever streptococci, could not be isolated from them. The udders of several of the cows showed sores but there is no record of any bacteriological examination of udder milk samples during the outbreak.

(2) The outbreak occurred on January 5th, and within three weeks 33 primary cases had appeared, these being of unusually severe type. All the patients had received the same milk supply. On the suspected farm one labourer had a sore throat and was proved to be carrying *Str. pyogenes*. Apparently, the milk of the individual cows was examined bacteriologically —though at what stage of the outbreak is not clear—but no infected cows were identified.

(3) This large outbreak lasted about three weeks, 62 per cent. of the cases being in persons over 15 years of age. In at least 301 cases the milk supply could be traced directly or indirectly to one dairy supplied by five farms. *Str. pyogenes* of the type causing the outbreak was isolated from the bulk milk of one farm, and here four of the milkers were suffering from sore throat and malaise and were also carrying *Str. pyogenes*.

(4) The outbreak occurred in March among children attending two schools. Seventy-five of the 87 primary cases fell ill within three days, and illness was confined to those drinking raw milk—about one-third of a pint daily. No cases occurred among 58 children attending one of the schools where they took "malted milk" or no milk at all.

The supplying dairy had also distributed milk to 300 households in addition to the schools, and five cases of scarlet fever occurred in these households at the same time as the children were sickening. The milk supply was received from several farms; on one of these a milker was found to be carrying *Str. pyogenes*, and milk handled by this man also contained the same type of streptococcus. A child of this milker had had scarlet fever some months previously. The milk of the individual cows in the herd was not examined bacteriologically, but streptococci belonging to the same type were found in the milk supplied to the school

and in the throats of some of the affected children.

(6) An official report of this outbreak has not yet been published, but the following facts are known.

On December 11th the child of a dairyman was notified as having scarlet fever and on the same day it was found that at least 100 of the dairyman's customers had had tonsillitis of varying intensity. The milk which had been distributed to the infected houses came from one farm and the supply was immediately stopped. One of the milkers on this farm had had a sore throat for a fortnight and a swab from his throat gave haemolytic streptococci on culture. Also, one of the milker's children had had a running ear for a fortnight, and from the discharge haemolytic streptococci were also isolated. The milker in question had been attending to the dressing of this child's ear. Most of the cases in the epidemic seem to have started on December 10th, 11th and 12th; there was a marked drop in the number on December 13th and a small rise on December 15th, 16th and 17th, after which there was a rapid decrease. In the Doncaster outbreak complete bacteriological examinations were carried out on the herd milk, on patients, farm workers, and the milk of individual cows in the herd. Briefly, it may be said that haemolytic streptococci belonging to the same serological type were isolated from the herd milk, a number of the patients, the milker and his child, and from the milk of one of the cows.

The Doncaster outbreak was of special interest because it was definitely traced to a cow. Full details of this animal and of her association with the outbreak are to be published at a later date.

(7) The epidemic occurred in August. All the patients had consumed raw milk from one farm. The farmer had died a few weeks previously from a disease diagnosed as "silent pneumonia." Subsequently, his wife, daughter, son and grandson, suffered from a disease ultimately shown to be typhoid fever,, and presumably all these persons had contributed to the contamination of the milk. The outbreak ceased when the cattle were removed elsewhere and the milking staff was changed.

(8) The 51 deaths were those which occurred in the resident population alone. All the affected households were supplied from a single dairy handling 1,000 gallons daily. The typhoid bacillus was isolated from the bulk milk of this dairy. The initial source of contamination was never identified, but on one of the farms, which supplied 20 gallons daily to the distributor, it appeared that the cows were watered at a rivulet which a few hundred yards upstream received sewage effluent heavily charged with typhoid bacilli.

(9) The 24 cases were spread over five months. Twelve of the cases were known to have received the milk from one farm and it was subsequently shown that the farmer was a carrier of the paratyphoid bacillus, while one of the servants was considered to be suspicious. The outbreak stopped when the milking personnel was changed and the water supply, which was heavily contaminated, was discontinued.

This outbreak is interesting because its course was such as might be expected to follow occasional chance contamination of the milk by a "carrier," *i.e.*, there were odd cases cropping up over a period of months and no sudden outburst to call attention to the milk supply.

(10) All the patients in this small outbreak had milk from a local farm, where the cattle were grazed on pasture watered with sewage effluent. This effluent was proved to contain paratyphoid bacilli, and it was concluded that the contamination arose through the large number of human carriers established by a previous paratyphoid epidemic in 1931 (see below).

(5) and (11). In each of these outbreaks a considerable number of people were affected. Up to the present no official account of either has been published but it is hoped that full details will become available at a later date.

Among outbreaks other than the eleven listed, reference may be made to those at Brighton and Hove (1930), Hove (1931), Epping and neighbourhood (1931), Aberdeen (1919), Aberdeen (1925).

Reference may also be made to a series of illnesses at Trowbridge (Wilts.), in 1930, not only because of its interest but also because it is not mentioned in the Cattle Diseases Report.

Brighton and Hove (1930).—This was an outbreak of scarlet fever and septic sore throat. Between November 7th and 8th, 66 persons were attacked with scarlet fever, 44 of the cases being reported on the fourth and fifth days of the outbreak. During the same period 100 cases of sore throat were reported, with two deaths. All those involved consumed milk from one dairy, which drew its supply from two farms and which distributed 65 gallons of raw milk daily to about 300 persons. The epidemic ceased as soon as this supply was boiled. Two members of the dairyman's family, both of whom were concerned with handling the milk, were found to be infected with *Str. pyogenes*. It was assumed that these were the initial source of the outbreak but it must be remarked that neither the employees nor the cows on the two farms were examined bacteriologically. (Wilkinson, E. (1931.) *Brit. Med. Jour.* ii. p. 494.)

Hove (1931).—This outbreak of septic sore throat lasted about a month; during that time about 1,000 families were involved and there were 65 deaths. All the families were supplied from a single dairy distributing 1,500 gallons daily to about 6,000 customers. The milk was collected from a number of neighbouring farms and the bulk milk from one of these was found to contain *Str. pyogenes*. An attempt to isolate this organism from the milk of individual cows on this farm was unsuccessful but the attempt was not made until several weeks after the epidemic started. The epidemic ceased as soon as the supply from this farm was withheld.

An important feature to note regarding the Hove outbreak is that the incriminated herd was ideally run from a hygienic standpoint, every precaution being taken to produce milk of the cleanest quality.

The way in which the milk supply became contaminated was never understood, but it was known that sore throat appeared among the farm personnel coincidently with the first epidemic cases. (Wilkinson, E. (1931.) *Brit. Med. Jour.* ii. p. 494.)

Epping and Neighbourhood (1931).—This was an outbreak of paratyphoid fever, with at least 307 cases, which occurred in February and March. All the patients consumed milk from a certain farm, where it was subsequently ascertained that one of the workers was suffering from paratyphoid fever. This worker, in spite of being ill, continued to work between January 3rd and 24th. A second milker developed the infection later, while the blood of a third gave a positive reaction to the agglutination test. After these carriers had been identified, the cows were milked by fresh and healthy milkers and the milk was pasteurised before distribution. Thereafter no further cases were reported. (Ann. Rep. C.M.O. (1930.) p. 55.)

Aberdeen (1919).—This was an outbreak of milk-borne dysentery which lasted from March to May, and the events are recalled because of the magnitude of the epidemic. Nine hundred and seventy-eight cases were reported to the medical authorities but it was known that others had occurred; these, however, were not recorded since the disease is not a notifiable one. There were 72 deaths. All the cases had received milk from one large dairy which was particularly well conducted. This dairy was supplied from 36 farms. On one of these, several members of the household and a milkmaid had symptoms of diarrhoea immediately prior to the outbreak. The milkmaid continued to work while ill. All the sick persons on this farm were subsequently found to be suffering from bacillary dysentery. It seems that the infection was first introduced by a relation of the farmer who had been nursing cases of dysentery in Salonica and had unknowingly become a carrier. (Kinloch, J. P. (1922.) *Jour. Hygiene*. **21.** p. 451.)

Aberdeen (1925).—This was an acute outbreak of gastro-enteritis due to *Salmonella enteritidis*. One hundred and fifty-eight cases were reported on the first day and 339 on the second, and there was no special sex or age incidence. The affected households were supplied by four separate farms but one of these sold its surplus milk to the other three. On this particular farm a cow had been removed from the milking herd one week before the epidemic started owing to its having an indurated udder. The udder of this cow was stripped daily by the farmer, who also bulked the milk for transport to town though he did not assist with the milking. The cow developed septicaemia and was slaughtered on the first day of the epidemic. *S. enteritidis* was isolated from her flesh and from her udder tissue. (Kinloch, J. P., Smith, J., and Taylor, J. S. (1926.) *Jour. Hygiene*. **25.** p. 434.)

Trowbridge (1930).—A full account of the Trowbridge incident was published by S. V. Golledge in 1932 and the facts briefly were as follows. In April, 1930, there occurred on a small dairy farm a series of four acute illnesses. The first person to become affected was a milker who got a septic hand and subsequently died of streptococcus septicaemia. This milker's wife also got a septic hand after washing her husband's milking smock, but recovered. A few days later, a second milker suffered from an illness, one of the symptoms of which was " urticarial swelling of the face," and he also recovered. Three weeks after the death of the first cowman, the farmer himself, who assisted in the milking, became ill and had a septic condition in the left axillary region. He died in six days and haemolytic streptococci were isolated from the cadaver. Subsequent to an inspection of the cows by Mr. Golledge, five cases of mastitis were discovered and the milk from two of these was found to contain haemolytic streptococci of the same type as those isolated from the farmer, and they were also identical with streptococci isolated from the milking smock. Presumably the cows had become infected in the first place from one of the milkers and the milk of these cows was responsible for the series of acute illnesses which followed each other rapidly. It should be noted that the milk from this farm was being sent daily to a factory where it was condensed, and this fortunate circumstance undoubtedly averted an outbreak among the consumers. (Golledge, S. V. (1932.) *Veterinary Record*. **12.** p. 1499.)

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CLINICAL COMMUNICATIONS

Duodenal Ulceration in the Dog

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It is recognised that, in the human subject, duodenal ulceration is a disease of civilisation, and that the stresses and strains of modern life with their attendant dietetic irregularities contribute in no small measure to the formation of duodenal ulcer. Of importance, too, is the possibility of severe shock (resulting from accident or burning) having, in the first instance, initiated the condition. Inasmuch as dogs now figure in an increasing proportion of road accidents, and, in many cases, their diet now approximates to that of man, these factors may have some influence upon the formation of ulcer in the dog.

Case 1

Subject.—Rough-haired terrier, male, aged four-and-a-half years.

History.—The patient was first seen on August 5th last year, when the owner reported that the dog had been off colour for the previous week and, during that time, had refused to eat unless coaxed and had shown a disinclination for exercise. Examination at this stage was for the most part negative, the temperature being normal, the bowels regular and no definite symptoms of illness being exhibited. An arsenic tonic was prescribed and the dog was not seen until August 25th, when one spasm of sickness on the day previous was reported. Palpation over the region of the stomach showed some tenderness. Constipation and slight stiffness over the lumbar region was noted. Bismuth carbonate mixture, together with medicinal paraffin, was prescribed and the dog made an apparently uneventful recovery. A month later the dog was seen again, the owner mentioning that, in the last two days, there had been marked constipation, with difficulty in rising.

At this examination the presence of pain over the epigastrium still was revealed. The conjunctiva and mucous membrane of the mouth were clean, but the breath was offensive. A peculiar, stiff gait was noted, as if the dog was suffering from lumbago. Aspirin in tablet form was given, but the condition became worse in the following two days. On September 26th symptoms indicative of dull abdominal pain were presented. There had been repeated vomiting with ensuing weakness, the dog standing motionless for considerable periods with the head between the forelegs and the nose touching the ground. Examination at this point revealed a rise in temperature to 102·9° F., pain on pressure of the abdomen and distension of the stomach and bowel.

Ulceration of the bowel or a foreign body in the stomach was suspected and an X-ray photograph suggested. The owner, however, finally decided against the latter course, and, as the pain appeared to be increasing, the dog was destroyed.

Post-mortem.—The lesions were confined to the abdominal cavity. No foreign body was found in the stomach and, apart from one small patch of inflammation in the region of the pylorus, there was nothing abnormal to note in this organ. On opening into the body cavity a small brown patch about the size of a sixpenny piece was seen on the peritoneum of the right side. This corresponded to a similar patch on the peritoneal covering of the duodenum. On the inside of the latter were found four ulcers varying in size from that of a threepenny piece to that of a shilling. The third of these ulcers, about three inches from the pylorus, was the deepest and had almost perforated the bowel, being visible as the afore-mentioned brown stain. In addition, there was a generalised, diffuse inflammation of the small bowel extending to the caecum.

Case 2

Subject.—Rough-haired terrier, male, aged five years.

History.—The dog was seen for the first time on December 1st, the owner having observed apparent pain in the left leg on rising. It was stated that, six months previously, the dog had been struck by a car, but as no visible injuries had been sustained medical advice had not been sought. On examination the dog appeared normal except for some tenderness over the lumbar region extending down the left thigh. The appetite at that time was good and the body functions were normal. The history of the accident and the absence of other symptoms pointed to a diagnosis of rheumatism following a fibrositis in the thigh and lumbar muscles. Sodium salicylate and bicarbonate mixture was given and the dog was not seen until December 12th. On this occasion vague symptoms of ill health were presented. The heart rate was increased but the pulse lacked strength; vomiting had occurred the day previous; bowel movements were regular, the faeces being rather loose. The mouth was clean despite the fact that the breath was very offensive. In an effort to steady the heart action digitalis pills were administered and a diet of raw meat and milk was suggested. A positive diagnosis at this stage was not attempted. Three days later a further examination was made. The condition had become markedly worse in the meantime and all food and water had been refused. While

being examined the dog remained on all fours without moving, with the head almost resting on the floor. Pain over the right side, extending from the last rib to the sacrum, was evident, gentle pressure causing the dog to groan. Having in mind the symptoms of Case 1, a tentative diagnosis of duodenal ulcer was made and the owner instructed forcibly to feed the dog on an exclusive milk diet. Sodium bicarbonate and bismuth bicarbonate in 10 gr. powders were given and the patient seen in four days. There was some little improvement in the condition and the treatment was continued.

On December 22nd, however, the owner reported the dog to be much worse, the animal having become, in the interval, short tempered and difficult to handle. Weakness was noticeable but the dog still remained standing with the head thrust down, resting on the floor. No further sickness had occurred, but food and water had been refused. The dog's temper being now uncertain, further treatment was deemed out of the question and the owner agreed to have it destroyed.

Post-mortem.—The heart showed a marked degree of fatty degeneration, as did the liver to a lesser extent. Some small patches of inflammation of the stomach lining were found in the pyloric region. In the duodenum, about half-an-inch from the pylorus, the first ulcer was found and between this point and the ileum a further six were discovered, all roughly about half-an-inch in diameter. None of these had perforated the bowel, each presenting a shallow depression and thereby exposing the muscular layer devoid of all mucous coat and surrounded by a very slight rim. Extending down the duodenum was a diffuse inflammation, while the entire colon was markedly inflamed.

Case 3

Subject.—Smooth-haired terrier, male, aged three-and-a-half years.

History.—The dog was seen on March 2nd, a week after he had apparently met with some accident. The owner reported that during the previous week the dog had returned home limping, and since then had been in constant fear. Examination revealed little other than a tenderness over both sides of the chest extending across the lumbar region and down the left thigh. Fear was very evident, but as the dog was stated to be of a nervous disposition not much importance was attached to this. It was concluded that the pain and fear resulted from a blow received in the slight accident. Camphor liniment and bromide tablets were prescribed and the dog was seen three days later. By this time he was to all intents normal, the pain and the apprehension having gone almost completely.

On March 25th the patient returned, looking in low condition. Sickness and diarrhoea had commenced the day previous and appetite for food and water had been lost. The dog was listless and disinclined to move; temperature was normal; the mucous membranes were clean. Palpation over the stomach and on the right side showed considerable pain. Inflammation of the stomach and bowel was diagnosed but the possibility of ulceration in the duodenum was mentioned to the owner and instructions on careful dieting given. Bismuth mixture and dimol tablets were administered.

In the course of the four days following the dog became rapidly worse and on March 30th was seen in a state of collapse. Vomiting over the past two days had been practically incessant; temperature was subnormal and the pulse very weak. The breath was foul, the tongue and mouth being coated with a dirty brownish-yellow scum. The case appeared hopeless and the dog was thereupon destroyed, the final diagnosis reached being either an early stage of Stuttgart disease or duodenal ulcer.

Post-mortem.—The mucous membrane of the stomach was covered with a bright yellow slime, but there was practically no inflammation except around the pylorus. The inside of the bowel was similarly coated with this slime. The first part of the duodenum was intensely inflamed and about two inches from the pylorus was found an ulcerated patch about a quarter-of-an-inch in diameter. The succeeding eight inches of the duodenum showed only streaks of inflammation with one poorly-defined patch of ulceration. Two inches further on, however, a well-marked ulcer was found. In this case the mucous membrane was completely eroded, exposing the muscular layer. Towards the caecum the inflammation was less intense and the large bowel showed only traces.

A fourth case was observed during February and March, the history of this dating back to August of last year, when the dog was involved in a street accident. The symptoms presented were almost identical with those of Case 2, but as a *post-mortem* examination could not be made, corroborative evidence of ulceration was not available. However, apart from Case 1, there is a common predisposing feature, *viz.*, street accident. Gross injuries were not sustained, but it can be assumed that the dogs suffered shock to some degree. How much this influenced the succeeding history it is difficult to say, but it is evident that ill health followed in three cases.

The record of the fourth case is complete, but at present there are two patients receiving treatment, these having been under observation since the early days of January. Medical treatment, together with careful dieting, appear to be meeting with gradual success. Until these cases are completed, however, a detailed report would serve no useful purpose.

Grass Tetany in Sheep*

C. W. CARTWRIGHT, M.R.C.V.S.
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Early one morning in May an urgent message was received from a client of mine requesting me to attend several sheep which he thought had been poisoned. They had been turned out overnight into a small field, from which there was access to an adjacent plantation: in this, however, nothing of a poisonous nature could afterwards be found.

There were about 60 Welsh sheep with lambs in the field and of these about half were ailing and presented a strange and alarming sight. The majority were lying about in different positions; some were absolutely comatose and tympanitic, others were unable to rise and showed paroxysmal movements. Only a few could stagger for a few yards in a jerky, stilted manner. The muscles of the jaws, the neck and the thighs seemed chiefly to be affected with tonic spasms.

Grass tetany, in a very acute form, was diagnosed.

Prompt treatment was plainly indicated and it was fortunate that the essentials for this were at hand, for some of the sheep were *in extremis*; in fact, two died before they could be attended. The first step was to prop them on their chests either by laying them alongside the bank, or by using hard objects such as bricks on either side. While this was being done, tapping of the most tympanitic animals was hurriedly performed; some also received an injection of camphor in ether and oil. About a dozen of these appeared beyond hope of recovery, but subsequently revived. Assistants then washed the udders, whilst the owner assisted me to inflate. Fortunately, in addition to my milk fever syringe, I had also with me a ewe inflator.

When the inflation had been completed an injection of calcium dextrose (10 to 30 c.c. according to the severity of the symptoms) was given and in many cases the udders were reinflated.

It was pleasing to note the rapid response to the treatment: many of them, one after another, would rise and walk away—with a rather uncertain gait at first but slowly becoming stronger.

By evening only a few of the bad cases remained down, and for these I continued to employ the same treatment, giving, in addition, an injection of adrenaline hydrochloride.

This has been my only experience of grass tetany in sheep on a wholesale scale, but it was satisfactory in that out of 35 treated 31 recovered.

The field had a luxuriant growth of grass, and two questions arise: What is grass tetany and how does udder inflation affect the condition? Whatever may be the explanation, it affords to the uninitiated just another example of the success of empirical treatment.

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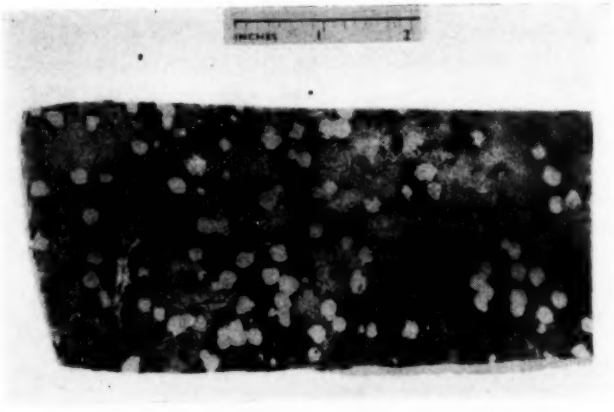
CLINICAL NOTES OF MORBID SPECIMENS PRESENTED TO THE NORTH WALES V.M.A.*

A: By Professor J. F. Craig, M.A., F.R.C.V.S.

(1) *Kidney of Cow Affected with Suppurative Nephritis.*—Both kidneys involved. Animal in calf, and presented typical symptoms and lesions of Johne's disease. In the lesions in the kidney *Corynebacteria renale* were recognised.

(2) *Bacillary Necrosis of the Liver from a Cow.*—The necrotic patches are small, not more than a quarter of an inch in diameter, very numerous and evenly distributed through the liver substance. The condition is due to *Actinomyces necrophorus* and the infection has evidently been transported to the liver through the portal vein from the alimentary canal. In the latter, usually no local lesion is found. This specimen came from a cow which is reported to have died after a short illness, with symptoms of a depressing fever but without any jaundice.



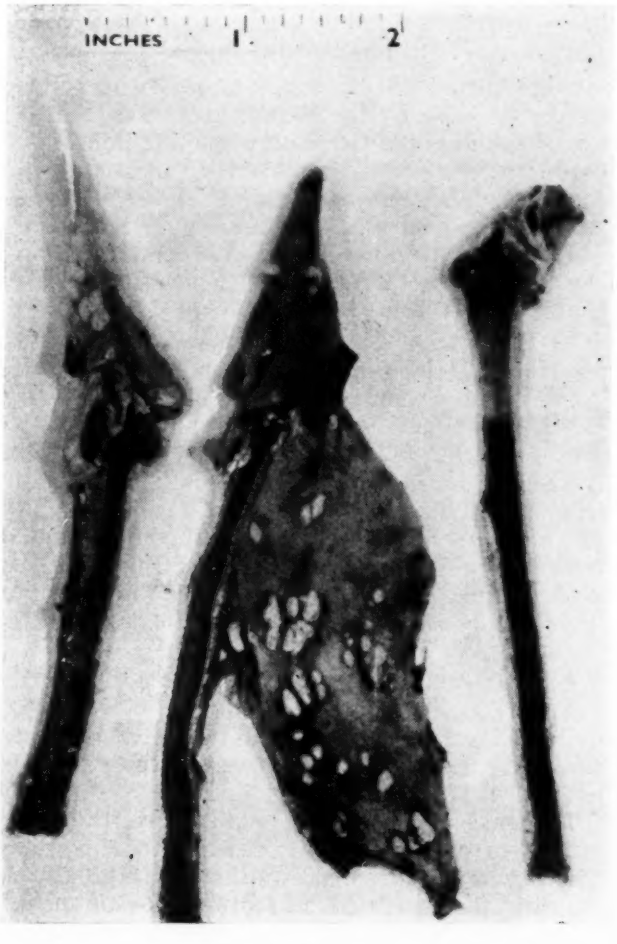
Bacillary Necrosis: Liver of Cow.

(3) *Larynx and Trachea from Three Fowls Affected with Infectious Laryngo-tracheitis.*—The important changes to be observed are the dark red patches on the mucous membrane of the trachea and larynx and the blood clots in their lumina.

*Case communicated to a meeting of the North Wales Division, N.V.M.A., at Rhyl, February 19th, 1937.

*Meeting held at Rhyl, February 19th, 1937.

This disease has come into prominence during the past two years and a few outbreaks have come under our notice. It is remarkable in its incidence and its mortality. It is extremely difficult to trace the source of infection and in some instances only a very small number of birds die or even become affected in an outbreak. It is probably not a new disease but one which has only recently been differentiated as such. There will be noted in the middle specimen of the illustration a number of white patches on the mucous membrane of the oesophagus. These patches are identical with those seen in cases of avitaminosis in chickens.

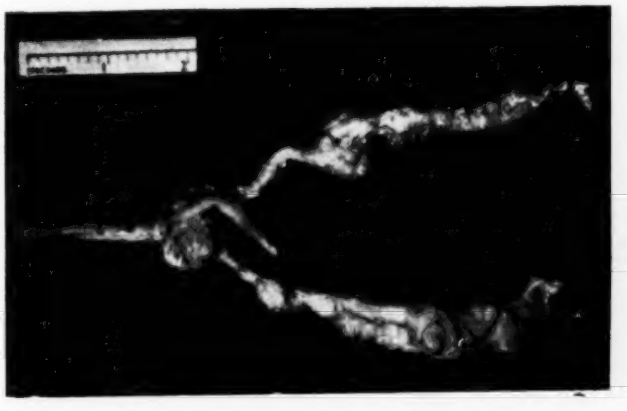


Lesions of Infectious Laryngo-tracheitis in Three Fowls.

(4) *Blackhead in a Chicken, Illustrated by the Necrotic Patches in the Liver.*—It is our experience that Histomonas and Heterakis are quite common in the caeca of poultry, but it is not often that these liver changes are noted in this species. The observations we have made emphasise the importance of separating turkeys from poultry if blackhead in the former is to be prevented.

Blackhead: Liver of a Chicken.

(5) *Necrotic Nodules in the Walls of the Caeca of a Fowl, Simulating Caseous Tubercles.*—Such nodules are not uncommon on the caecal walls and are also seen on the wall of the bowel. They are yellow, firm and readily enucleated but no tubercle bacilli can be found in them. They have been attributed to infection with coccidia but frequently no coccidia are associated with their presence. There are no changes in the other organs. As a rule only an occasional animal in a flock is affected.



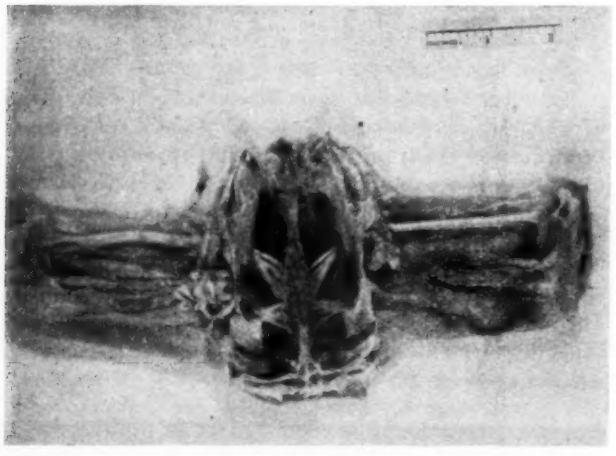
Necrotic Nodules in the Walls of the Caeca of a Fowl.

(6) *Fowl Paralysis Showing the Enlargement of the Divisions of the Sacral Plexus and the Sciatic Nerve of the Left Side.*—There is no doubt of the presence of a special disease, with

definite changes in the nerves and in the central nervous system, which causes serious losses in flocks of poultry and in birds over five or six months. At *post-mortem* examination one looks for evidence of enlarged nerves and certain changes in the eyes but it may be necessary in some instances to resort to microscopic examination of sections of the central nervous system in order to arrive at a diagnosis.

The cause of the condition is not yet ascertained although a virus has been suspected. Some cases have been associated with coccidiosis and intestinal worms, but these parasites are not constant. Hereditary influence in its development is suggested. It is, however, interesting to note that in some recent experiments chickens from flocks which have been seriously affected with this disease have been reared very successfully when they have been kept on new ground and in isolation.

In this disease there is lymphatic infiltration of the nerves and of the central nervous system, with degenerative processes in the nerves, and it would appear that this condition is only one phase of lymphomatosis generally.



Fowl Paralysis. Sacral Plexus and Sciatic Nerve of the Left Side, enlarged.

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B: By Mr. R. L. Lewis, M.R.C.V.S., D.V.H.

(1) *Section of Penis of Pedigree Shorthorn Bull, with Calculi.*—When first called in to this animal, the symptoms I noted were those of subacute colic. There was an uneasiness, no desire for food or drink and the temperature was 103° F. Observing that the floor of the loose-box was dry I was led to suspect that the animal was not micturating and on questioning the farm bailiff, I elicited the information that he had not seen the bull pass any urine during the previous twelve hours or more. Palpation along the course of the penis from the perineum to a point just behind the scrotum, where the penis forms an S bend, produced symptoms of great pain, particularly at this bend. Rectal examination revealed a greatly distended bladder.

The animal was slaughtered and a large quantity of calculi [exhibited] were found in the bladder and in the urethra. One large calculus was lodged in that portion of the urethra just behind the scrotum, and this doubtless accounted for the intense pain in that region and the obstruction to the flow of urine.

(2) *Lipoma Removed from Vagina of Cow.*—Considerable straining and protrusion of an object unfamiliar to the owner, caused the latter to send for me. Examination proved the existence of a tumour, situated on the floor of the vagina and about six inches inside the passage. The cow was restrained by the use of "bulldogs"; the usual antiseptic precautions were taken, and by introducing a hypodermic syringe bound to my right hand by a rubber band, the base of the tumour was desensitised by a local anaesthetic. The whole of the tumour was then completely removed by means of the écraseur. Haemorrhage was negligible. (Professor Craig has since kindly examined the tumour microscopically and he has reported that it was a lipoma covered by a thick layer of granulating tissue.)

(3) *Aneurysmic Root of the Anterior Mesenteric Artery of a Horse with Strongylosis.*—This was removed during a *post-mortem* examination on a four-year-old mare which had died of colic. The previous history was that the mare had been unthrifty from the time she was a foal and that her previous owner had given her away owing to her continued unthriftiness. I am not suggesting that this was the actual cause of the mare's death, but it is an interesting complication, showing invasion of the strongyles *in situ*.

(4) *Necrosis of the Pedal Bone in the Horse.*—This shows a large necrotic cavity in the articular surface of the pedal bone of a seven-year-old heavy Shire horse, with exostosis around the corono-pedal joint.

Lameness and intense pain were the only guides to a speculative diagnosis in this case. There was no outward swelling and no pain on rotating the foot, and, in spite of poulticing for some time, no evidence of abscess formation pointing outwardly. The horse after several weeks of treatment was destroyed.

(5) *A Branding Curiosity.*—I bring this exhibit (an American "dime") to your notice as a "curio" which I obtained during the War in France in 1918.

A black American gelding was brought to me "Lame in the near fore shoulder, sir," and on passing my hand over the "flat" of the shoulder, I felt something under the skin resembling, to the touch, a threepenny-bit under a tablecloth. The horse had a shrapnel wound in the axilla and contracted tetanus. He was

later destroyed. The object under the skin was then removed and proved to be the coin [exhibited] bearing the date 1901. I was informed afterwards that this method was employed on many American ranches to brand the foals, the dime bearing the year in which the foal was born. I aged this horse at about 17 years. It seems to me to be a unique method of branding.

REVIEW

["Die Zahnfachenzündung des Pferdes" ("Disease of the Tooth Alveoli in the Horse.") H. J. Voss. (1937.) Enke, Stuttgart.]

In this work the author gives a complete survey of periodontal disease in the horse.

The cause of the condition may be physiological, bacterial or mechanical, but while all three are discussed, particular stress is laid upon conditions in which the structure of the components of the tooth and its alveolus are changed, with a corresponding change in the percentage of the constituents of the blood, and an endeavour is made to connect these two factors. A summary of the anatomy of the area is given, and the author proceeds to a consideration of the aetiology in the horse, as opposed to the aetiology of similar conditions in man—a useful comparison—the pathology, diagnosis, and predisposing factors.

Then follow details of blood analyses in affected cases, particularly of those constituents of blood which are normally concerned with the metabolism of the tooth and the alveolar cell, to show how the condition may have arisen, and what changes occur in the blood when the condition exists. The clinical side is then discussed and the value of X-ray, particularly for deep lesions, is emphasised.

Finally the histological changes in the tooth and surrounding structures are described, showing the connection between them and the physiological changes exhibited.

A few pictures showing X-ray films, irregularities of growth, and morbid histology are given; and one plate showing a clinical picture of gingivitis and ulceration with complicating alveolar disease.

USE OF GIN TRAPS

"To prohibit the use of gin traps at present would undoubtedly tend to allow rabbits to increase." This is the conclusion of a Select Committee of the House of Lords on Agriculture (Damage by Rabbits) in their recently issued report. They recommend, however, that the Ministry of Agriculture should at once make technical inquiries in order to find a less cruel type of trap than those now in use, and that when satisfied that they have found one, the use of all other types should be prohibited.

N.V.M.A. DIVISIONAL REPORTS

North of England V.M.A.*

ANNUAL GENERAL MEETING AT NEWCASTLE-ON-TYNE

The Annual General Meeting of the North of England Veterinary Medical Association was held in the Agricultural Department, Armstrong College, Newcastle-on-Tyne, on Saturday, March 20th, 1937.

In the morning Dr. J. Russell Greig, Director of the Animal Diseases Research Association, Moredun Institute, Edinburgh, presented a paper on "Grass Sickness in Horses." Dr. Greig illustrated his lecture by showing a number of lantern slides. An interesting discussion followed, after which the meeting adjourned for the Annual Luncheon in the University Union.

The business meeting was held in the afternoon, when there were present Messrs. W. Lyle Stewart (in the chair), J. J. McDowall, H. B. Allan, E. R. Callender, A. C. Forbes, T. Wilkinson, J. W. Rider, C. Nicholson, D. Starkey, H. P. Lightfoot, J. Smith, E. F. Hardwick, J. D. Peele, T. M. Mitchell, G. Atkinson, G. F. Pickering, W. A. Doughty, J. R. Rider, with Dr. J. Russell Greig and Mr. J. O. Powley as visitors.

The minutes of the last meeting, having been published in the *Veterinary Record*, were taken as read and confirmed.

Apologies for absence were received from the President of the National Veterinary Medical Association (Captain R. Simpson), Dr. Bradley, Sir Frederick Hobday, Messrs. Rabagliati, J. H. Taylor, H. Bain, W. T. MacGregor and Jackson Young.

Correspondence.—The Secretary read letters from the Lancashire Veterinary Association. An invitation was received from the Royal Sanitary Institute to appoint a delegate to attend their Congress in Birmingham in July, 1937. Mr. Allan stated that it was possible he might attend this Congress, and if so, undertook to represent the Division.

Report of Council Meeting.—The Council had agreed to ask Mr. W. Lyle Stewart to assume the post of Hon. Secretary of the N.E.V.M.A. The Council recommended that Messrs. Callender and Wilkinson be nominated to serve on the N.V.M.A. Council. Mr. Mitchell proposed that the sentence in which it was decided to recommend that the sum of £20 be transferred to deposit account be deleted, and that travelling expenses be paid when due. Mr. Rider seconded this motion. After discussion the report was adopted.

*Received for publication April 7th, 1937.

Financial Report.—The Hon. Treasurer presented the financial report, which was adopted.

Nominations.—The nominations of Messrs. J. S. Inglis (Northallerton) and J. O. Powley (Harrogate) were received.

Day of Meeting.—Mr. E. F. Hardwick moved "That in future general meetings of the Association be held on Fridays instead of Saturdays." After discussion it was voted that meetings be held as usual on Saturdays.

Induction of New President.—Mr. Lyle Stewart introduced the new President of the N.E.V.M.A., Mr. J. J. McDowall, of Sunderland, and wished him a successful year of office. The new President then delivered the following address:—

Presidential Address

It is with very mixed feelings that I rise this afternoon, first to thank you most sincerely for the honour you have conferred upon me by electing me as your President for the ensuing year. Secondly, I am very conscious of my shortcomings when I consider the illustrious Presidents you have had in the past, and to be associated with them is an honour worthy of no small gratitude.

It is customary for the newly-elected President to congratulate and thank the immediate Past-President, on your behalf, for the very able way in which he has carried out his duties during the past year, and I have very great pleasure in asking you, Mr. Lyle Stewart, to accept our appreciation of your services, as President and true friend of the Association. We are very fortunate in retaining your services in the capacity of Secretary for the ensuing year, and I am very thankful, as I feel assured that, with your experience, you will help to make my Presidentship less arduous.

I would also like to say how sorry we are to lose the services of Mr. Rider as Secretary. Ever since I came to the North of England Mr. Rider has been Secretary, and I am sure you will agree with me that the Society would not be in its present progressive position had it not been for the hard work which Mr. Rider has put in on our behalf. One need only go back two years to be reminded of the amount of time and thought which he gave to us in the combined capacity of President, Secretary and Treasurer, and I also ask you, Sir, at this stage, to accept our grateful thanks for your services.

Last year your President finished his address on a note of optimism for the profession, and to maintain unity. I agreed with his remarks then, as I do now, and here may I ask you what better opportunity of maintaining unity have we than at meetings such as this? The special knowledge and skill which our medical confrères assimilate is seldom obtained in private practice or in the realms of daily routine work—they do to a very large extent gain it from hospitals, health centres and research centres. The veterinary practitioner cannot fall back on hospitals and health centres, at present. He is an individual and, as such, has to maintain a certain prestige amongst his fellow beings as a good diagnostician.

We all make mistakes, but is it not possible to gain a tremendous insight at meetings of an Association such as we have here? Is there one of us present who has nothing to learn, even if it is only from a friendly talk with a colleague? Team work, to my mind, is a most essential factor in any sphere of life or profession and our team work is obtainable here and should be maintained as such. We may not all be of the same opinion, and we need not agree on many matters, but we need not be disagreeable because of that fact.

Research is a very essential factor in any profession and we, as a profession, have been neglected inasmuch as research centres are few and research workers are limited.

You have all seen the announcement of the appointment of a veterinary surgeon to succeed another in the Chair of Animal Pathology at Cambridge. When one considers the Statute of the Council of Senate which stated that "a professional veterinary qualification, though undoubtedly advantageous, shall not be regarded as essential," I feel sure that the appointment of a noted veterinary surgeon has relieved the minds of us all; and the status of the profession, regarding veterinary science and research, is on a much sounder footing than it would have been had an individual without that very necessary qualification been appointed.

Another point which strikes me very forcibly is the fact that the future of the profession is uppermost in one's mind. How often have we seen lately new schemes and thoughts being advanced for the benefit of agriculture and public health generally? We as a Division are certainly not backward in this matter, and although we may not see any immediate or material benefit from our labours and thoughts, a time is bound to come when the results will prove that we have not laboured in vain.

I would say here that your Council have spent much time during the past year in the preparation and drafting of new schemes for the establishment of tubercle-free herds in County Durham. These projects, although at the present time some are in abeyance, are a very real step in the right direction. It has at least been patent to all that these schemes were fathered by our Chief Veterinary Officer. Only a very short time ago there was a talk in the profession of a split in the ranks. I am sure that we all agree that in Co. Durham the relationship of whole-time officer, part-time officer and practitioner has never been strained, that the

projects and schemes which have been before your Council have at least cemented and strengthened that relationship, and that there is a mutual understanding in the Division which we anticipate, and hope, will continue.

There is an ever-increasing tendency to associate the relationship of veterinary science and medical science. This, to my mind, is a very progressive step and no doubt both professions will benefit from this association and the nation's thanks will be given conjointly to both professions. There is a greater tendency for the advancement of preventive treatment than at any time. The veterinary profession have always been to the fore in this regard, and with all due respect to our medical confrères, I would suggest that they have to take second place to the veterinary profession in this matter. As a profession we are in a position to prevent the spread of disease in a much more effective and final way, and surely, if given the opportunity, we are also capable of controlling the much-discussed milk problems. We are doing our best to prevent the spread of tuberculosis by advising, through veterinary inspectors and practitioners, the advantages of tuberculin testing. There must be some incentive for the farmers and if the Milk Marketing Board would definitely state their policy, in the near future, I cannot but believe that we would get nearer the time when tuberculin testing would play an even greater part in the life of the veterinary surgeon than at present—with the resultant, and to my mind, sure method of preventing the spread of this disease and its ultimate eradication.

The treatment of the true pathological condition is carried out by the practitioner, and with all due respect to the practitioners present, I might suggest that ordinary medicinal or surgical methods lead us nowhere. We may treat conditions which are straightforward, but where would we be without the pathologist, bacteriologist or research worker? Who, but they, are in a position to advise and help in the prevention and recurrence of what one might term "new diseases"? Not only do they advise regarding treatment, but help in the prevention of spread and recurrence of disease by giving us autogenous vaccines and sera. Particularly is this so, in my experience, in the treatment of smaller animals. Therapeutics and pharmacology are playing an even smaller part in practice than before. One needs only to think of the past, when salts, ginger and products of the vegetable world generally were bought by the stone, and the treatment was heroic. Vaccine therapy is, however, largely displacing the old heroic methods and veterinary students would be well advised to pay particular attention to this avenue of their studies.

Before closing I would draw your attention to the lectures which are being given to doctors, dentists and veterinary surgeons under the direction of the Air Raid Precautions Department of the Home Office. I can assure you that these lectures are most interesting and instructive, and all should take advantage of them. Our professional status puts us in a position, once again, of serving the public. If the occasion arises—and Heaven forbid that it will arise—we will be able to help, and with the knowledge obtained at these lectures be able to speak with authority. We, as a profession, will once again show that we are an active and not a passive section of the community.

It now only rests with me to thank you one and all for giving me such a patient hearing. I trust we will have an interesting and harmonious year ahead, when I anticipate and hope that all the members will enter into the discussions of the forthcoming papers.

On the motion of the PAST PRESIDENT, Mr. McDowall was thanked by the meeting for his stimulating address.

Transfer of Banking Accounts.—The next business concerned the transfer of the Association's banking accounts from Darlington to Newcastle. Mr. ELPHICK moved that the necessary authorisation be given to the Hon. Secretary. Mr. PEELE seconded.

Vote of Thanks.—It was moved by Mr. J. R. RIDER that the N.E.V.M.A. place on record their appreciation of the courtesy extended to the Association by Lloyds Bank, Darlington, and that a letter to this effect be sent to the manager of Lloyds Bank, Darlington. This motion was seconded by Mr. WILKINSON and carried by the meeting.

Any Other Business.—Mr. ELPHICK gave a report on the work of the R.S.P.C.A. Clinic in Newcastle-on-Tyne for 1936. New premises were required, and with this object in view a special effort was to be made to raise the sum of £5,000. A Noah's Market Bazaar was to be held in the Grand Assembly Rooms, Newcastle-on-Tyne, on October 5th and 6th, 1937, and Mr. Elphick requested members to note the dates. A site in New Bridge Street, Newcastle-on-Tyne, had been chosen for a large and up-to-date clinic.

Mr. MCDOWALL called on Mr. Mitchell to give a report on the work of the Sunderland Branch of the R.S.P.C.A. Mr. MITCHELL said that with donations, etc., they had just managed to pay the expenses of the dispensary.

Mr. STARKEY stated that the P.D.S.A. had opened a dispensary in Middlesbrough.

A discussion then took place on the subject of free treatment for the sick animals of the poor, and several members expressed the view that the existence of the R.S.P.C.A. clinics was not sufficiently well known to the public and should be advertised more extensively.

Mr. Allan raised the question of anti-gas lectures in Newcastle, and reported that he had not yet received an invitation to attend. Mr. Rider stated that he understood that another course of lectures was to be held in Durham.

Mr. Elphick asked members able to do so to supply him with cases of fowl coccidiosis, as he desired to test a new treatment.

The meeting then terminated and the members joined the ladies at tea in the University Union.

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Grass Sickness in Horses

Summary of Dr. Greig's Paper and Discussion

Dr. Russell Greig, Director of the Moredun Institute, gave a résumé of the research which had been applied to the elucidation of the grass sickness problem. There was evidence that the disease might be associated with an anaerobic bacillus and he indicated that the lines upon which they were at present working gave grounds for encouragement. It was hoped this year to be able to arrange for a large-scale field experiment to test the significance of their findings.

Mr. Peele thanked Dr. Greig and raised two points in connection with the paper. Firstly, he asked if any of the test horses which Dr. Greig tried to infect experimentally had, after the experiment, ever naturally developed grass sickness. Secondly, he mentioned two cases of clover sickness he (Mr. Peele) had had, although not recognised as such. Both were in mares suckling foals. These mares had been inoculated with a mixed streptococcal vaccine, used as a preventive against joint-ill. In both these cases there was tremendous swelling of the lips and nostrils, inappetence, and a temperature of 103° to 104° for two or three days. There was definite staggering in one case. The foals were not affected and the mares both recovered.

Dr. Greig said that, with reference to the first point, he had no history of horses to which toxin had been administered. The test horses, for purposes of finance, were all old, and when they were finished with them they were sold, so they had no opportunity of knowing if they had subsequently been exposed to the disease. Actually there were only 30 to 40 horses used for that purpose. Dr. Greig next referred to the two cases of what appeared to be clover sickness. The incidence of clover sickness under normal conditions was very low and was often not recognised. He did not think there was any association between these two cases of clover sickness and the injection of the streptococcal vaccine.

Mr. Elphick stated that he had not seen many cases of grass sickness, but had noted that affected horses refused to drink water. With reference to the test horses, he asked if it was not possible that they had already had the disease and recovered, and were therefore immune?

Dr. Greig replied that it was a remarkable fact that horses would not drink when suffering from the disease, when actually they needed water. The stomach, in acute cases, was distended with fluid and the tissues were thirsting for fluid and yet they could not get it. In chronic cases the horse appeared to have lost all desire for water.

Mr. Mitchell asked Dr. Greig if he could give some idea of the incubative period of this disease.

Dr. Greig stated that the disease could occur within three days of a horse being turned out on to pasture, but there was some conflicting evidence on this point. He mentioned a farmer who took the tenancy of a farm in Yorkshire, bringing horses from Scotland, and a year elapsed between the horses being brought to Yorkshire and the occurrence of the disease.

Mr. Doughty observed that on *post-mortem* examination he had always noted a haemorrhagic patch on the stomach. Was this constant? He added that he had known of two or three horses which had recovered, but the hair from the legs came off twice a year and they were left bare. He mentioned the case of a thoroughbred horse, two years old, which had the disease and recovered. After recovery, however, it was noticed that the superficial blood vessels stood up in knots, but after ten minutes' exercise this disappeared. That horse won two big races 18 months later. He asked if parasitic infection was considered to have anything to do with the disease.

Dr. Grieg said that in Scotland many horses recovered, but were frequently incapable of further work. In a number of cases the horse made an apparent recovery, but the next year was again attacked with grass sickness, and it seemed as if the immunity, if any, was not of long duration. They had not found the haemorrhagic patch present consistently, but certainly in a large proportion of cases. They had not been able to obtain any correlation between the disease and worm infestation: in some cases horses were lightly infested with worms, and in others heavily infested.

Mr. Doughty asked if the little pin pricks on the alimentary mucosa might possibly be worm bites, through which the toxin would be absorbed into the blood stream.

Dr. Greig replied that toxin was very rapidly absorbed and that it was possible that a break in the continuity of the mucosa would indeed favour absorption.

Mr. Powley remarked, more in the nature of an historical observation, that in 1918 he saw two acute cases in Warwickshire. These were diagnosed as colic, but did not follow an

ordinary course, and he now realised that it had been grass sickness.

Dr. Grieg stated that the first case of grass sickness was reported about 1911. There was quite a fair amount of the disease in the East Riding of Yorkshire.

Vote of Thanks.—The President (Mr. Lyle Stewart) proposed that the meeting accord Dr. Greig a very hearty vote of thanks for his kindness in coming to address them at a time when there were so many enticing counter-attractions in Edinburgh. Everyone, he thought, had thoroughly enjoyed the lecture, which was a simple and yet fascinating account of a perplexing problem, and at the same time a striking illustration of the disappointments to be met with in research work. Dr. Greig could take back to Edinburgh the very best wishes of the Division for his eventual success in the elucidation of the problem. In passing, he would like to ask whether grass disease had ever been recognised in Ireland? The localised incidence of the disease was extremely peculiar, and not altogether correlated to the horse population of an area, although this might be the case in Scotland. It made one wonder what would happen if the disease broke out on any scale in Newmarket or in the breeding studs in Ireland. The question of sensitisation was an intriguing problem, of which there were many examples in both man and animals. The conditions giving rise to urticaria in cattle or clover sickness in horses were not at all well understood, and it was of extreme interest to hear that horses became so highly sensitised to something contained in *Cl. welchii* antiserum. The President considered that Dr. Greig and his co-workers had stumbled on something significant here.

Mr. McDowall seconded the vote of thanks to Dr. Greig, which the meeting carried with acclamation.

Dr. Greig having expressed his appreciation of the way in which they had responded to the vote of thanks, said that he was delighted to renew acquaintanceship with his many good friends in the North of England, and the long journey from Edinburgh had been well worth while.

W. Lyle Stewart, *Hon. Secretary.*

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Derbyshire V.M.A.*

A meeting of this Division was held at the Midland Agricultural College, Sutton Bonington, on Friday, February 12th, when the following members were present: Mr. Geo. Eaton (President), Messrs. J. M. McLinden, H. L. Torrance, A. H. Hunter, J. L. Buckingham, R. S. Cockburn, G. Durrant, P. Abson, J. McPhail Fraser, A. Kelly, H. W. Steele-Bodger and W. J. Ironside. Dr. J. R. M. Innes, Messrs. J. G. Murray, W. L. Wilson and W. L. Dwerryhouse attended as visitors.

Apologies for absence were received from Messrs. H. Burrow, J. T. Turney, O. V. Gunning, J. Edwardson, L. A. Auchterlonie, H. S. Cockburn, F. A. Davidson and T. V. Bagshaw.

The minutes of the previous meeting, having been published in the *Veterinary Record*, were taken as read and signed.

Correspondence.—(1) From the National Horse Association, asking for the continuance of support. It was agreed that this should be granted.

(2) From the Royal Sanitary Institute, inviting the nomination of a delegate to attend the annual Congress of that body. No official nomination was made.

Treasurer's Report.—This showed that the Division had a balance of about £22 in hand. Arising out of the discussion of this report, it was proposed by Mr. Torrance, seconded by Mr. McLinden and agreed, that the amount of the annual subscription be fixed at the October meeting in each year.

Nomination and Election of New Members.—Mr. W. L. Wilson, Lutterworth, was nominated as a member, and Mr. J. L. Buckingham and Mr. J. McPhail Fraser were elected.

Address by the President

The President then addressed the members, as follows:—

I must first thank you for the honour you have done me in electing me President of this Division of the N.V.M.A. for the ensuing year. I am very conscious of my own shortcomings, but happily the government of this Society is, like that of the State, in the hands of the permanent officials, and with the help and guidance of our indefatigable Secretary, I think I can look forward with confidence to a successful year of office. I have neither the desire nor the ability to emulate the mental acrobatics of my illustrious predecessor, but happily he is usually with us for our amusement and education.

It is not my intention to bore you and waste your time with a lengthy presidential address, but merely to make a few brief remarks before calling on our essayist.

When I first became a member of this Society, some seven or eight years ago, it was numerically a very small one and composed chiefly of practitioners. We have been fortunate, however, in having our numbers considerably augmented during the last year or two by the appointment of whole-time veterinary staffs in the counties of Notts., Derbyshire, Staffordshire and Leicestershire. The attendance recently at some of

*Received for publication March 24th, 1937.

our meetings has been excellent, although, generally speaking, there is still a great deal of room for improvement. Personally, I regard the time and effort required to attend these meetings as well worth while. On many occasions I have derived untold benefit from them, and it is a matter of great surprise to me that more practitioners do not avail themselves of such splendid opportunities of keeping abreast of current affairs and progress.

I am engaged solely in country practice, and in that down-trodden and rapidly diminishing branch of the profession one earns one's bread, with, maybe, an occasional top-dressing of butter, by the sweat of the brow. It must be admitted that the life of the country practitioner is a hard one, and the reward very often not commensurate with the effort involved, but it has the saving grace of infinite variety, and on that account alone is always a source of tremendous interest and appeal to me. The many problems with which one is daily confronted, and the failures interspersed between occasional triumphs, have a sobering influence on all but the most blasé and prevent one from becoming swollen-headed and dogmatic. I will readily concede that there are more congenial and lucrative tasks than the removal of decomposed afterbirths from scouring cows for bankrupt farmers. After all, however, this forms only a small portion of the work which those of us who are, in the words of the radio crooner, "born to be a shorthorn's lackey," are called upon to perform, and one cannot complain of boredom, as is so often experienced by those engaged in a monotonous daily routine.

In passing, I would suggest that the three greatest benefits conferred on the country practitioner within recent years are the stomach tube, the embryotome, and spinal anaesthesia.

We have been fortunate in persuading Dr. Innes, of the Institute of Animal Pathology, Cambridge, to address us to-day, on his own particular subject, and I have now great pleasure in calling on him for his paper.

Paper.—Dr. J. R. M. Innes presented a paper on "Malignant Disease in Animals and its Implications as regards the Cancer Problem," which was heard with much interest and appreciation. [A summary of Dr. Innes' discourse is reproduced earlier in this issue.—*Editor.*]

Discussion.—The greater part of the discussion took the form of conversation with Dr. Innes during the demonstration of the specimens.

Votes of Thanks.—Votes of thanks were accorded to Dr. Innes for providing the paper and giving the demonstration, and to the President for conducting the meeting.

The company took tea together and a collection was made on behalf of the Victoria Veterinary Benevolent Fund.

W. J. Ironside, *Hon. Secretary.*

North Wales V.M.A.*

MEETING AT RHYL

A meeting of the Division was held at the Imperial Hotel, Rhyl, on Friday, February 19th, 1937, at 2 p.m. The President, Mr. H. Llewelyn Jones, occupied the chair, and there were also present: Mr. Cartwright, Professor Craig, Messrs. H. V. Hughes, W. Hughes, W. O. Jones, R. L. Lewis, Dr. Montgomerie, Messrs. W. T. Rowlands and J. H. Wynne. Mr. Ferguson, Colwyn Bay, attended as a visitor.

Apologies for absence were received from Messrs. Cane, Edwards, Sir F. Hobday, Mr. T. W. Hughes, Professor Share-Jones, Messrs. Savage and J. Ll. Williams.

The minutes of the meeting of December 4th, 1936, were read and confirmed. In connection with those minutes, the Hon. Secretary reported that he had written to certain gentlemen regarding their membership of the Division. It was agreed that their membership should terminate. It was also agreed that the resignation of Mr. H. Burrow, owing to removal from the area, be accepted with regret.

The Hon. Secretary also drew attention to the fact that the period of twelve months had elapsed since the Society had agreed, as a temporary measure, to defray the railway travelling expenses of representatives of the Division on the N.V.M.A. Council to meetings of the Council. It was agreed that these expenses be defrayed by the Society for a further period of twelve months as from November 1st, 1936.

The President reminded the meeting that the gathering that day was the first of the New Year and that he was entering upon the second year of office as their President. They would remember that in October last he yielded to pressure to remain their President for a further term. He did not intend to give them a Presidential Address—he had done that on his previous election—but he could not let the occasion pass without extending his heartfelt thanks to the members for the honour they had conferred upon him and for their demonstration of confidence in him. His own view was that last year's meetings had been most successful. They had had good attendances and their discussions had been both interesting and stimulating. He urged the members not to let their interest flag, and he made an appeal for their continued support of the officers.

Correspondence.—(1) From the Royal Sanitary Institute inviting the Society to nominate a representative to the Congress to be held at Birmingham. It was agreed that the President or his nominee should represent the Society.

*Received for publication April 19th, 1937.

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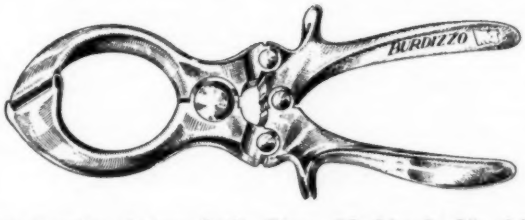

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F. R.C.V.S., long experience, seeks an Appointment or would entertain a nucleus of a small animal Practice.—Box 200.

M. R.C.V.S., 36, married, experienced accredited T.T. herds and laboratory, but knowledge of general Practice rusty, requires appointment (preferably) cattle; willing and hard worker, car available, excellent testimonials and abstainer.—Box 204.

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FOR SALE, well-established Branch Practice, mixed; returns about £600; no house to take over; C.C. appointment; quick disposal necessary; no opposition; reasonable premium for cash.—Box 182.

FOR SALE, mixed country Practice; returns about £1,400; introduction given; this Practice is capable of considerable further extension.—Box 185.

LONDON, old-established canine and feline Practice for sale; receipts over £1,100 and increasing; good introduction given or short partnership arranged; price £1,000; premises could be bought or rented.—Box 187.

FOR SALE, a well-known, old-established Practice, in the best dairying district of south-west England; in present hands nearly 30 years; returns, about £2,500 per annum and rapidly increasing; only reason for disposal, owner's health; unable to cope with work; would be willing to retain small animal practice and certain appointments and assist purchaser in cattle practice; excellent house, surgery, operating rooms, kennels and fittings. Price, including instruments and drugs, £3,000; owner retaining small animal practice and appointments, according to agreement, £2,000; a partnership would be considered; only those with capital and experience need apply.—Box 188.

PRACTITIONERS wishing to dispose of their Practices or wanting partners are invited to apply to Peacock & Hadley, Ltd., Veterinary Transfer Agents, 67-68, Chandos Street, Bedford Street, Strand, W.C.2, who always have several would-be purchasers of practices or partnerships on their books. Locum Tenens and Assistants supplied at short notice.

MISCELLANEOUS

STUDENT wishes to assist practitioner during summer vacation; similar position in large country practice during last vacation; good references; motorist; free from August 1st, until October 1st.—Box 189.

SEVERAL good second-hand Microscopes cheap; stamp for list.—Chards (Reg.), Pawnbrokers, Forest Hill, S.E.23.

COMPLETE outfit for small animal Practice for sale cheap; kennels, cat boxes, operating table and instruments and drugs.—Apply, Box 201.

Change of Address

WOULD all friends kindly note that the future address of Mr. A. A. Mackay (late of the Laboratory, Goring) is "THORNBURY," GORING, READING. Telephone: Goring 212.

MISCELLANEOUS

MR. R. J. WALLS, M.S.R., Radiographer, undertakes to X-ray horses or other animals anywhere in the MIDLANDS; high-powered self-contained unit. Films can be seen on the spot. Very moderate charges. Address: Cropwell Butler, near Nottingham; 'Phone: Radcliffe-on-Trent 193. Private Residence: 21, Stanley Road, West Bridgford, Nottingham; 'Phone 84704.

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115th Session Commences October

Courses of Instruction Qualify for M.R.C.V.S., and B.Sc., Edin. and for the Diploma in Veterinary State Medicine (D.V.S.M.)

College Calendar, with full particulars of Examinations, Bursaries, etc., may be obtained from A. C. Doull, C.A., Secretary.

(2) From the General Secretary, N.V.M.A., conveying the information that the Council of the Association was favourable to the proposal to institute a Welsh Branch of the Association. It was agreed that the President and the Hon. Secretary be instructed to communicate with the officers of the South Wales Division with a view to holding a meeting, if possible, early in July, and, if this proved possible, that the ordinary July meeting of the Division be not held.

Griffith Evans Memorial.—The report of the committee appointed to consider the proposed memorial to the late Dr. Griffith Evans was considered and it was agreed to recommend to the Council of the N.V.M.A. "That a fund be inaugurated by the N.V.M.A. within the profession to institute a memorial to commemorate the work of the late Dr. Griffith Evans, D.Sc., M.D., C.M., M.R.C.V.S." It was also agreed that the Society contribute £2 2s. towards the Griffith Evans Memorial Fund of the University College, Bangor.

Livestock Industry Bill.—The President drew attention to the Livestock Industry Bill which was being considered by Parliament, and it was agreed to approve the recommendation of the Council that the President and Hon. Secretary be empowered to take any necessary steps to protect the interests of members of the Society.

Representatives to Council, N.V.M.A.—It was agreed that Professor Share-Jones and Mr. E. P. Edwards be nominated to serve on the Council of the N.V.M.A. for the ensuing year.

Fellowship.—Mr. W. Forgrave, of Wrexham, having been nominated at the last meeting by Messrs. Wynne and Lewis, was unanimously elected a Fellow of the Society. Mr. A. F. Ferguson, of Colwyn Bay, was nominated for Fellowship by Mr. Wynne and Dr. Montgomerie.

Clinical Matters

The meeting then considered a number of clinical cases submitted by Mr. Cartwright, Professor Craig, Mr. W. Hughes, Mr. Lewis, Dr. Montgomerie and Mr. W. T. Rowlands. Many of these cases were illustrated by specimens taken from the subjects under consideration and an interesting discussion ensued.

*Mr. Cartwright reported on a case of grass tetany in sheep.

*Professor Craig exhibited specimens of (1) kidney of cow affected with suppurative nephritis; (2) bacillary necrosis of the liver from a cow; (3) larynx and trachea from three fowls affected with laryngo-tracheitis; (4) blackhead in a chicken, illustrated by necrotic patches in the liver; (5) necrotic nodules in the walls of the caeca of a fowl, simulating caseous tubercles; (6) fowl paralysis: enlargement of the divisions of the sacral plexus and of the sciatic nerve.

*Mr. Lewis produced (1) section of a bull's penis showing a number of calculi; (2) lipoma removed from the vagina of a cow; (3) aneurysmic root of the anterior mesenteric artery of a horse affected with strongylosis; (4) necrosis of the pedal bone in the horse; (5) American dime removed from a remount during the Great War.

Mr. W. Hughes showed two navicular bones taken from a thoroughbred hunter, three years old. The horse had been needle-fired over the pastern and had been to a quack, who was said to have removed a bone from the back of the foot. The animal was X-rayed and navicular disease was diagnosed. He was then destroyed. The bones both showed spur-like extensions at their extremities, which he considered were a characteristic of navicular disease.

Paper.—Dr. Montgomerie read an article prepared by himself and Mr. W. T. Rowlands on what they proposed to call, for want of a better term, "Lamb Dysentery in a Foal." [This paper received publication in our issue of March 27th.—*Editor.*]

Votes of Thanks.—A vote of thanks was proposed by the Hon. Secretary to the contributors of the clinical cases, this being carried amid applause. On the termination of the meeting the President very kindly entertained the members to tea, and Mr. Wynne, on behalf of the members, thanked Mr. Llewelyn Jones for his hospitality.

H. V. Hughes, *Hon. Secretary.*

*Mr. Cartwright's account of his case and the descriptions of the specimens shown by Professor Craig (illustrated) and Mr. Lewis, are reproduced in the Clinical Section of this issue.—*Editor.*

VETERINARY UNITS IN WARTIME

Colonel Stordy's Appeal for International Recognition

An appeal for the international recognition of veterinary units in wartime was made by Colonel R. J. Stordy, C.B.E., D.S.O., M.R.C.V.S., at the annual meeting of Harrogate and District Branch of the Royal Society for the Prevention of Cruelty to Animals.

Speaking of his experiences while commanding the Society's Silver Star veterinary unit in Abyssinia during the Italian campaign, Colonel Stordy said he went out to establish a field hospital for 250 to 300 animals. Before going, he notified the Italian High Command that the unit would use the five-pointed star as their field sign, but he was informed that this had no place in the international convention, and could not be recognised.

"I plead that the veterinarian in the field should have the same reasonable security as the members of the Red Cross organisations," said Colonel Stordy. He hoped that the Society might go back to Abyssinia to continue their work, but there seemed little chance of it at the moment.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

May 24th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 4 p.m.

May 26th.—Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at the Society's House, 1, Wimpole Street, W.1, 5 p.m.

May 27th.—R.C.V.S. Voting Papers to be returned.

May 28th.—First Annual General Meeting of the Sussex Veterinary Society; Division, N.V.M.A., at Brighton, 2.30 p.m.

May 29th.—Meeting of the Society of Veterinary Practitioners; Division, N.V.M.A., at Chester, 2.30 p.m.

June 3rd.—R.C.V.S. Annual Meeting.
Victoria Veterinary Benevolent Fund Annual Meeting.

June 4th.—Meeting of the Southern Counties Veterinary Society; Division, N. V. M. A., at Bournemouth, 2.30 p.m.

June 7th.—N.V.M.A. Committee Meetings, Royal (Dick) Veterinary College, Edinburgh.

June 8th.—N.V.M.A. Committee and Council Meetings, Royal (Dick) Veterinary College, Edinburgh.

June 10th. D.V.S.M. Written Examination begins.

June 14th.—D.V.S.M. Oral and Practical Examination begins.

June 23rd.—R.C.V.S. Committee Meetings.

June 24th.—R.C.V.S. Committee Meetings.

June 25th.—R.C.V.S. Committee and Council Meetings.

July 5th.—R.C.V.S. Written Examinations.

July 6th.—R.C.V.S. Written Examinations.

July 8th.—R.C.V.S. Oral Examination begins.

July 26th-30th.—N.V.M.A. Congress at Bournemouth.

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N.V.M.A. CONGRESS: BOURNEMOUTH, JULY 26th-30th

Reduced Rail Fares for Delegates

The Railway Companies of Great Britain (except the lines of the London Passenger Transport Board) have agreed to issue tickets, as under, to passengers travelling to the Association's Congress.

Third Class: Ordinary single fare and one-third for the double journey.

First class: 50 per cent. over the third class fares (in Great Britain only).

Applications for these tickets must be made on the approved form, any number of which will be supplied on request by the General Secretary, N.V.M.A.

These facilities will apply from all stations in Great Britain and Ireland and from the Irish ports by railway-owned steamers and the boats of the following lines: Belfast Steamship, British and Irish Steam Packet, City of Cork Steam Packet, Burns and Lairds Lines.

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THE CORONATION SERVICE

Impressions of a Member, R.C.V.S.

It may interest the profession to know that their President was honoured by being given one of the best seats in Westminster Abbey at the Coronation. Those who, in the illustrated papers, have seen the interior, where His Majesty is passing down the centre, accompanied by the Great Officers of State, with the ornamental screen in the background, can visualise a similar structure at the other end, with tiers of seats much like the circle of a theatre. The centre of the front row of this was allotted to the representative of the Royal College of Veterinary Surgeons, who had an uninterrupted view of all the processions both on entering and departing, and saw everything with the exception of the actual ceremony.

There were numerous processions and everyone had to be in their seats by seven o'clock with the exception of the Lords and Ladies, who were continually arriving dressed in their magnificent robes and carrying their coronets. At 8.35 the Speaker of the House of Commons, preceded by two Pursuivants and accompanied by his Mace Bearer and Officers, entered and passed up the broad passage at a very slow step and disappeared through an archway in the afore-mentioned screen. At 8.55 the minor Royalties arrived and formed the second procession. Immediately after the foreign Royalties and representatives of different States arrived, many wearing such a blaze of jewels as was in itself a wonderful sight. His Majesty's Regalia was now brought in procession from the Altar down to the Annexe—the choir singing the Litany the while—followed by the Bishops and the two Archbishops in their State Robes. Next came the processions of the Princes and Princesses of the Blood Royal, each preceded by two Pursuivants and with their separate retinues. First was the Princess Royal accompanied by the King's two daughters; then in the following order, the Duchess of Gloucester, the Duchess of Kent, Prince and Princess Arthur of Connaught, etc., each with a page carrying their coronets. The next procession was that of Queen Mary—truly

a regal figure—accompanied by the Officers and Ladies of her household. In quick succession the Standards of the Empire and Dominions followed, carried by their representatives; then the Standard of Wales and finally the Royal Standard. There followed the Great Officers of State including four Knights of the Order of the Garter, the Lord President of the Council, the Prime Minister and the Colonial Prime Ministers, the Archbishop of York, the Lord High Chancellor, and the Archbishop of Canterbury, in the order named. The Queen's procession followed next, preceded by three heralds. The Queen's Regalia was carried by members of her Household with Her Majesty's crown carried by the Duke of Portland and guarded by a sergeant-at-arms on either side and followed by pages bearing their coronets. Then came the Queen, supported on either side by a Bishop and followed by a numerous retinue of Ladies and Gentlemen of her Household. Finally, the King's procession entered, preceded by his Regalia, carried by those high in rank amongst our nobility with their attendant pages. Then His Majesty the King, supported, as was the Queen, by a Bishop on either side and followed by the numerous members of his Court. After the Coronation was over these processions were seen again, in the reverse order, but now both King and Queen were crowned and carried the Emblems of Sovereignty, followed by the Peers and Peeresses wearing their coronets.

It was a magnificent sight. The blaze of jewels, the wonderful colourings of the different robes, passing through the assembly of people wearing elaborate uniforms and dresses—the stateliness of it all is beyond adequate description, but it was a spectacle such as will live in one's memory for all time. J. W.

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The Chief Veterinary Officer of the Ministry of Agriculture, knighted in the Coronation Honours List, has elected to be styled Sir John Kelland.

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Official Coronation Medals have been awarded to Professor Sir Frederick Hobday, C.M.G., F.R.C.V.S., and Mr. J. Willett, M.R.C.V.S., President of the Royal College, in virtue of their membership of His Majesty's Household. It is a pleasing coincidence that, in his case, Sir Frederick this year celebrates the "silver jubilee" of his appointment as Hon. Veterinary Surgeon to the King.

* * * * *

We regret that, in our last issue, the honour conferred upon Mr. Frank Ware, F.R.C.V.S., was erroneously given as a Knight Commandership of the Most Eminent Order of the Indian Empire. Mr. Ware was made a Companion of the Order, and Mr. Robert Daubney, M.Sc., M.R.C.V.S., an Officer of the Most Excellent Order of the British Empire.

A point is corrected by a correspondent in our account of the life and work of Sir Arthur Olver: it appears that Sir Arthur's father officiated as Director of the Show Yard for the Royal Agricultural Society of Cornwall and not of England, as stated.

PERSONAL

Marriage.—At St. Mary's Church, Felpham, Sussex, on May 15th, by the Rev. D. A. Manners—Archibald Douglas, son of the late Mr. Robert Alexander Campbell and Mrs. Campbell, of "Duncraggon," Stepps, Glasgow, to Doris Isabella, only daughter of Mr. and Mrs. J. E. Fraser, of "Yellowhammers," Middleton-on-Sea, Bognor Regis, Sussex.

Dr. Greta Campbell, Wakefield, and Miss Olive Campbell, Glasgow, sisters of the bridegroom, were bridesmaids and Mr. William A. Milligan, a College friend of the bridegroom, was best man.

The guests included the following members of the veterinary profession: Miss Mary L. Somervail, Worthing; Mr. Adam Gibb, Dumfries; Mr. and Mrs. J. D. McLauchlan, Wimborne; Mr. and Mrs. A. McL. King McLeod, Paisley, and Mr. and Mrs. George Begg, Winchester.

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R.C.V.S. OBITUARY

Holmes, George, 23, West Street, Winterton, near Scunthorpe, Lincs. "Existing Practitioner." Died May 15th, 1937; aged 79 years.

Woodrow, John S. S., 162, Boothferry Road, Goole, Yorks. Graduated Glasgow, May 21st, 1903. Died May 18th, 1937; aged 59 years.

* * * * *

ARMY VETERINARY SERVICE

London Gazette—War Office—Regular Army

May 14th.—The following retire on ret. pay (May 15th): Maj. and Bt. Lt.-Col. S. L. Slocock, M.C., F.R.C.V.S., Maj. J. Bell.

Territorial Army

May 7th.—The follng. Capts. to be Majs. (Apr. 3rd): H. Gillmor, H. Begg.

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CART-HORSE PARADE

One of the most popular items of the Whitsuntide holiday programme for the people of London, and the innumerable visitors staying over after the Coronation was the forty-seventh annual event of the London Cart-horse Parade Society, which was held at Regent's Park on Whit Monday. More than 600 horses, driven singly, in pairs, tandem, or in teams of four, competed; they drew newly painted carts in a long procession past the judges' stand in the Inner Circle of the park. Every horse competing received a rosette, and the driver of each turn-out was awarded a cash prize and a brass medallion. The prizes were presented by Lady Gilbey.

Every horse had been regularly worked and used in the streets of London during the past three months. Some 40 drivers of the 594 competing were making their first appearance in the parade. Special prizes were awarded for drivers with service of not less than 25 years. The Isabel Constable prize was awarded to R. A. Small, who has been employed by Rickett, Cockerell and Co., Limited, as a driver for 51 years. Ten drivers had service of 40 years or more; 33 had driven for over 30 years; and 21 had service of 25 years or more. Every trade and industry using horses in its work was represented, as well as 41 borough councils. Prizes were also given for Shire and Suffolk

horses by the Shire Horse Society and the Suffolk Horse Society.

Most of the competitors made a family outing of the parade. In keeping with the brightly decorated turnouts were the fancy costumes worn by many of the families, and more than one riding in a cart brought along a concertina. The parade lasted more than two hours, and among the many interested spectators was Lord Lee of Fareham.

Speaking at a luncheon given before the parade, the President of the Society, Sir Walter Gilbey, said he wished that the Minister of Transport had been there to see the horses. There might then be little heard of banning horses from London streets. On the previous Wednesday the horses had made a wonderful show. He had seen three Coronations and had never seen anything to equal the horses in that procession. There was much talk of the nervous strain suffered by omnibus drivers. Many of the drivers of horses in this parade had seen service for from 21 to 51 years. There were no nervous wrecks among them.

Field-Marshal Lord Milne and Major G. de Chair, both of whom were among the judges, who also included Major-General Sir John Moore, F.R.C.V.S., also spoke.

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LEGAL NOTES

£1,000 *for a Stallion Kick.*—A case recently heard in the King's Bench Division before Mr. Greaves Lord, was not without interest, and points a warning to those who in general practice are accustomed to take pupils.

Briefly, the case was that of a young farm pupil, the plaintiff, who was working for the defendant farmer in return for tuition. The plaintiff was ordered by defendant to take a two-year-old stallion out to water. Before doing so, defendant fixed a roller and crupper on the stallion. It was led out of the stable by the plaintiff with an ordinary head stall and bit, and a leading rope seven feet long. In the yard, the stallion became restless and the plaintiff was severely kicked, whereby he suffered the loss of one kidney.

The learned judge when giving judgment for plaintiff for £1,000 with costs, pointed out that the evidence of Mr. R. C. Irving, F.R.C.V.S., a stallion owner of long experience, had made it clear that such an animal with a roller and crupper placed upon it for the first time might be expected to be difficult of control, and that common prudence suggested the provision of a lunging rope, as a precautionary measure on such an occasion.

General practitioners might do well to assure themselves that their insurance policies afford them cover against possible claims of this nature by their pupils, who may receive injury while seeing practice with them.

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EXPORT OF CATTLE TO THE UNITED STATES

Prohibition Withdrawn

The Ministry of Agriculture is informed that the United States Department of Agriculture has issued an Order removing Great Britain from the list of countries declared to be infected with foot-and-mouth disease and rinderpest. The effect of this Order is that the importation of cattle, sheep, pigs and goats, from Great Britain will now be allowed under permits previously obtained from the United States Department of Agriculture.

Animals must be accompanied by export certificates issued by the Ministry to the effect that they have been kept in Great Britain during the preceding 60 days and that during the period Great Britain has been free from certain diseases. Application for export certificates should be made on forms issued by the Ministry, and should be submitted not more than seven days and not less than four days before the date of shipment. Exporters are reminded that, in addition to the above-mentioned certificates, cattle (aged six months and over) are required to be accompanied by satisfactory tuberculin and contagious abortion test reports, and that both tests must be carried out under arrangements made by the Ministry. Application (giving full identification particulars of the animals and the addresses of the premises at which they are located) should be made in good time to enable the Ministry to nominate veterinary surgeons to carry out the tests. The necessary instructions and test charts will be issued by the Ministry direct to the nominated surgeon, but veterinary surgeons' fees are payable by the exporter.

The tests must be made within 60 days of the date of export. Cattle are not eligible for the tuberculin test if they have been tested with tuberculin within the preceding 60 days or have at any time reacted to tuberculin. In order to ensure the availability of test reports at the date of shipment, the Ministry suggests that the applications in connection with tests should be made not less than a fortnight before the shipment date.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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"THE COMMON RESPIRATORY AFFECTIONS OF HORSES"

To the Editor of the Veterinary Record

Sir,—Colonel Rainey's article entitled "The Common Respiratory Affections of Horses" contains little information in the nature of a contribution to the solution of the problem of these diseases beyond what has been already well recorded in the literature and is within the common experience of veterinary surgeons engaged in horse practice. His belief that what he calls metabolic disturbance is the primary cause of attacks of pneumonia in horses can only be regarded, in the light of the well-known circumstances in which the disease appears and the recorded findings upon examination of the lesions, as merely fanciful. Changes in the environment and in the physical condition of the animal doubtless modify profoundly the chances and the course of infection, in the way they are well understood to do in lobar pneumonia in the human subject. But whether the pathogenic bacteria readily discoverable in the lesions are capable of originating the disease in natural circumstances or whether a pathway for them is prepared by primary invasion with a virus or some other agency, is

a matter that calls for more extended research than has hitherto been performed and recorded.

In the review which I wrote on the subject and to which Colonel Rainey refers, the reports of failure to transmit the disease artificially by infection with the cultivated bacteria were mentioned. The work needs to be repeated, because it is not unlikely that in conditions of experiment in which the bacteria were not exposed to changes in virulence after isolation from the animal body they might be found to be capable of causing transmissible infection. The reported findings of Gaffky and Lührs (1913) were also mentioned and discussed: their work suggested that a virus which could be demonstrated in the bronchial exudate of horses during the early, febrile, pre-clinical phase of attack was the primary infective agent; the disease was transmissible only by close contact during this early stage or by application of the bronchial exudate to the nostrils of healthy horses. The disease was not transmissible during the subsequent stages, namely, those covering the ordinarily observed clinical disease, in which nasal discharge may become fairly evident and in which bacteria are readily isolated from the lungs. Until these reported findings are confirmed and extended in the hands of other workers, however, it would be idle to maintain that the aetiology of equine pneumonia has been fully solved. Furthermore, until the aetiology of the disease is settled, attempts to classify the common respiratory affections on a solid basis must necessarily be unsatisfactory. This does not mean that more accurate clinical descriptions of these diseases are not still needed by the research worker. The more recently reported findings of Waldmann and Köbe (1935) upon the aetiology of epizootic cough and their assumptions in regard to its relationship with other forms of disease in the respiratory tract certainly invite criticism, but the work, I think Colonel Rainey will agree, appears to be of such merit that the experiments upon which the findings are based ought to be repeated to establish their accuracy.

Colonel Rainey must surely be in error if he has read into my review that I wished to convey to the reader that equine pneumonia, of the kind which occurred distressingly in certain aggregations during the War, is a special, namely a pectoral, manifestation of the readily transmissible disease known commonly to British veterinary surgeons as "pink eye." Perhaps, as has been urged recently by workers on the human influenza problem, if the term influenza were eliminated from the nomenclature of the respiratory diseases of animals pending the determination of any relationships they may bear to the human infection, misunderstandings of this kind would be obviated to some extent. Nevertheless, experiences of the kind which Colonel Rainey recalls having had in India, and which were recorded by Clive Webb (1909. *J. Comp. Path. and Ther.* **22**. 105) at the Mona Remount Depôt in India and later came also under the notice of the present writer, of periodic local visitations of respiratory disease characterised by severe pectoral manifestations, make it difficult to decide always whether one is dealing with an outbreak of pink eye with severe pulmonary sequelae or with a specially highly contagious form of the common equine pneumonia.

Colonel Rainey makes much of the undoubted success which attended the recognition of a febrile, pre-clinical phase in equine pneumonia by the research staff employed in the R.A.V.C. during the War. This finding may fairly be accredited to the clinical acumen of the veterinary observers. But, from the stand-point of a researcher, it was a matter that had already been placed on record in the literature and in the ordinary way of research was to be subjected to early confirmation. The further efforts undertaken at the time to determine the nature of this common disease—which resulted in reality in the incrimination of the harmless hay bacillus as the causal agent and the preparation of a serum against this germ for treatment—would seem to be unworthy of perpetuation in a sober review. In sum, Colonel Rainey seems to have raised nothing in his critical article which has not been already answered in the reply which he acknowledged in his letter published in the *Veterinary Record* of October 26th last. The reader, however, will surely be grateful to him for his enthusiasm in keeping interest alive in what has been one of the most long-standing veterinary problems that have awaited solution; and any record of his own personal observations, which must be extensive and unique, will always compel genuine attention.

Yours faithfully,

J. T. Edwards.

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COMPULSORY PASTEURISATION OF MILK

To the Editor of the Veterinary Record

Sir,—It was not my intention at this stage to take part in any controversy with regard to the advisability or otherwise of the compulsory pasteurisation of all milk at the large consuming centres. However, the apparent anxiety of Mr. George Tullis, whose letter appeared in the *Record* of May 8th, and others of our profession prompts me to give very briefly my opinion of one aspect of the question.

The point I wish to raise, and it is one which appears to be exercising the minds of a good many of us, is the value of routine clinical herd examination as against pasteurisation in the elimination of tuberculosis from milk. It has been recently stated by a Medical Officer of Health, in whose county routine clinical examination has not been tried, that this examination is valueless for the above purpose. This statement I am prepared to deny most strenuously. I maintain that the value of the clinical examination depends upon the thoroughness and frequency of the examination.

Prior to the inauguration of quarterly clinical herd examinations in this City, the annual incidence of tubercle in bulk samples was usually between 8 and 12 per cent., the figure given by Mr. Tullis for his district. After the first year of quarterly examinations here—that is, 1936—the figure was about 2·5 per cent. This year, so far, the figure is less than 2 per cent., and this in spite of the fact that most of the herds in the City are flying herds. I am convinced that if the examination is made more frequently, this figure can be reduced to practically nil, but —and this I think is the crux of the question—the examination must be unhurried and thorough enough to detect the very early clinical signs, and the Ministry and local authorities must be prepared for a higher average valuation for animals removed under the Tuberculosis Order.

Yours faithfully,

F. H. Manley,
Veterinary Officer.

Public Health Department,
St. Peter's Chambers,
Glebe Street,
Stoke-on-Trent.

May 14th, 1937.

I.—AN ANIMALS (ANAESTHETICS) ACT ANOMALY

II.—CONFLICTING VETERINARY EVIDENCE

To the Editor of the Veterinary Record

Sir,—The recent publication in the *Veterinary Record* of a pamphlet by a member, dealing with cruelty on the farm; letters on the subject; and finally an editorial, lead me to hope that the time may be favourable for the voicing of a conclusion to which I have gradually been forced—that a move should again be made to have the castration of horses included in Schedule I of the Animals (Anaesthetics) Act, 1919. (The Act contains a clause empowering the Minister of Agriculture to add to the Schedules.)

My grounds for this contention are, with all due to respect to those who practise the art:—

(*a*) That the castration of horses, either standing or in the recumbent position, is a major operation which, when carried out without an anaesthetic, inflicts great, though often apparently transient, suffering and must, therefore, be regarded as an act of cruelty. I may add that the foregoing conclusion was forced on me regretfully as the result of my own experience, and is in no sense a theoretic standpoint.

(*b*) That the inclusion of the castration of the cat over six months old in Schedule I and the omission of that of the much more highly sensitive horse is an anomaly which does not redound to the credit of the profession. That this anomaly exists one has always understood to be due to the unqualified "gelder" opposition which is supposedly unable to obtain anaesthetics.

I should like, if I may treat in one letter of two subjects whose only connection is that both may be held to bear on the position of the profession in the public estimation, to refer to a matter which has recently caused me some distress. Two weeks following, reports, possibly garbled, have appeared in the local Press, in which members of the Royal College of Veterinary Surgeons have given diametrically opposed evidence. In both cases the charge brought by the R.S.P.C.A., was one of starvation. While, of course, not wishing to imply in any way that either veterinary surgeon was not giving his honest opinion, it does seem that if some attempt were made to approximate the evidence, magistrates, who, in spite of Mr. Muddlecombe, J.P., are not fools, would be more likely to appreciate the value of members of the profession as expert witnesses.

Yours faithfully,
Paul Crosfield.

Glovers Close,
Chipping Norton,
Oxon.
May 11th, 1937.

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"MISS ALEEN CUST" MEMORIAL FUND

To the Editor of the Veterinary Record

Sir,—We have pleasure in sending you a further list of subscribers to the "Miss Aleen Cust" Memorial Fund.

Once again may we thank all those who have supported this Fund so generously, and we sincerely hope that there are many more donations yet to come.

Yours faithfully,
O. B. Woodward.
P. L. Williams.
(*Joint Treasurers.*)

35, Foregate Street,
Stafford.
May 17th, 1937.

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H. J. Mitchell.	K. Morant.
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Subscriptions may be sent to: Miss O. B. Woodward, Walpole House, Burton-on-Trent, or Miss P. L. Williams, 35, Foregate Street, Stafford.

Diseases of Animals Acts

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic§ Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 16th to 30th April, 1937	50	53	—	—	5	8	1	39	27
Corresponding period in									
1936	16	18	—	—	8	16	1	101	61
1935	23	25	6	2,023	2	5	4	84	51
1934	19	23	—	—	8	8	12	44	26
Total 1st January to 30th April, 1937	268	302	3	262	67	102	111	398	222
Corresponding period in									
1936	198	239	4	379	63	192	126	746	505
1935	153	168	30	8,869	59	88	171	578	261
1934	169	176	1	31	75	122	311	518	286

Note.—The figures for the current year are approximate only.

§ Excluding outbreaks in Army Horses.